JULY, MDCCCLXIV.

THE ZOOLOGIST:

A

POPULAR MONTHLY MAGAZINE

OF

NATURAL HISTORY,

AND

JOURNAL FOR RECORDING FACTS AND ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, MOLLUSKS,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

No. CCLXXII.

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Longeared Owl at Stratford St. Anthony, Wiltshire.—On the 6th of May a good specimen of the longeared owl (*Strix otus*) was killed by a shepherd at Stratford St. Anthony, Wiltshire: he observed the bird sitting in an elder bush, and looking quite foolish (no doubt from being disturbed at mid-day), so he knocked it down with his crook. I believe this is by no means an uncommon bird about Salisbury, but I have never met with it at Stratford before. A few days ago I asked a keeper who is employed on the Wilton estate of the Earl of Pembroke, if he had seen any rare birds about lately: he told me there was a longeared owl's nest in a tree hard by; it contained only one young one, as he had killed two of the same brood a day or two before, and intended killing this one as soon as he could get the old birds. He took me to the tree to show me the two young ones that he had killed, but they were gone, so I climbed the tree to look at the one that was alive: when I came to look into the nest, I found the young one still alive and grown to a good size, also the bones, and part of the flesh and feathers of the two young owls that were killed by the keeper and laid at the bottom of the tree; the flesh appeared to be in good part eaten from the bones. I supposed by this that the old bird had fed her living young one on its unfortunate relations.—*Anthony S. Bradby; Moundsmere, Hants.*

Fieldfare near Andover on the 18th of May.—Yesterday I killed a fieldfare: it was a solitary bird, and proved on dissection to be a female; the ovary contained six eggs. It seems to me rather extraordinary that a bird of this species should be here in such a May as the present, with the thermometer at 100° in the sun. The stomach was filled with Coleoptera of the genus Elater, and apparently of two species: I little expected to find such food.—*Henry Reeks; Manor House, Thruxton, May* 19, 1864.

Fieldfares in Yorkshire in May.—I do not know whether it is a common occurrence in this part of England to have these birds so late, never having lived so far north before, but this afternoon I saw in the fields near here a flock of from one hundred to a hundred and fifty. I examined them attentively for some time with my landscape-glass: they were moderately tame, and let me approach within fifty or sixty yards.—*R. Tyrer, Keighley, Yorkshire, May* 1, 1864.

[I think this is not unusual.—*E. N.*]

Singular Nest of a Song Thrush.—In the month of March last a pair of song thrushes built their nest on the top of a straw bee-hive which stood on a covered stand in my kitchen-garden. The hive was tenanted by the usual complement of bees, which perhaps was the reason that the thrushes forsook their nest after the female bird had laid three eggs.—*J. H. Gurney; Catton, Norwich, May,* 1864.

Song Thrush nesting on the Ground.—This spring I found a nest of the song thrush built quite on the ground: the nest was placed at the bottom of a dead hedge that divides two water-meadows: there was a small stream of water running close beside the nest. The eggs were broken, and to all appearance sucked by a rat, at least I thought so, as rats are very numerous there.—*Anthony S. Bradby; Moundsmere, Hants.*

Redwings singing in England.—Many communications have lately appeared on this subject in the 'Zoologist.' Perhaps a few notes on my humble experience may tend to clear the matter. For years I have noticed the redwings congregating in vast quantities during mild weather in the spring and previous to their journey to the north. On such occasions I have seen them in thousands, scattered about the ground and covering the trees and bushes, especially towards the evening, and have been induced to approach them quite closely, in order to listen to the furious babel of chattering which was being rehearsed. Certainly I never on these occasions heard anything from them that I should call singing, the noise far more resembling the chattering of the starling than anything else I can compare it with.—*George Norman; Hull, May* 4, 1864.

Redwing singing in England.—On the 8th of March, 1864, in the immediate neighbourhood of Alton, I shot a redwing in the act of singing. There was a flock of redwings in a neighbouring field; the bird in question was, however, alone in a hawthorn-tree. Its song resembled that of the nightingale with a large admixture of the notes of the thrush.—*C. E. Stewart; Ackender House Academy, Alton, Hants, April* 9, 1864.

[Please send the bird for inspection.—*Edward Newman.*]

Redwing singing in England.—From all that I have heard on both sides of this question, I cannot help thinking that the solution of the difficulty depends entirely upon the definition of the word "singing." What constitutes a "song"? The Rev. A. Matthews is as positive that he has heard a redwing sing as Mr. Doubleday and the other gentlemen named in the editorial note are certain that this bird does not sing in England; and yet I have little doubt but that each of them has heard exactly the same note, the only difference being that Mr. Matthews calls it a "song," and his opponents say, "You cannot call this a song, it is merely a clear and loud prolonged twittering, and very different from the real song of the redwing, which the bird only gives forth in the breeding season, during the months it is absent from England." I could cite numerous instances in which I have approached very close to redwings, and, with a good glass, watched them with open bills and distended throats, uttering the peculiar note to which I have alluded, and which, I believe is the same to which Mr. Matthews refers. I think it is best expressed by the word "twittering." But I need not occupy your space further than to say that I have never heard a redwing utter any other sound than this prolonged and really musical twittering, except the call-note, which is harsh, and not unlike that of the fieldfare. The conclusion, therefore, at which I arrive is this: if it be granted that this peculiar twittering or warbling (call it what you will) is worthy to be called a song, and moreover that this is the *only* song which the redwing has, then, assuredly, the redwing *does* sing in England. But if, on the other hand, it be said, "We cannot allow that this twittering is a song, and besides this, the bird has another and a different note, which is as much a song as that of the thrush, but is uttered only in the breeding season," then we must conclude that the redwing does *not* sing in England.—*J. Edmund Harting; Kingsbury, Middlesex, May* 11, 1864.

Food and Song of the Redwing.—I should not have said anything more about this bird had not the Rev. Mr. Matthews stated that its food is essentially different from that of the thrush: as far as my observations go, the food of the two birds, with the exception of the snail, is precisely similar; the thrush certainly feeds upon fruit and berries as much as the redwing. At the bottom of my garden stand two large red-flowered thorns, and in the autumn they are generally covered with haws, of which the birds seem particularly fond, preferring them to those of the ordinary white-flowered thorns growing close by. The song thrushes invariably come to the two red-flowered thorns in the autumn to feed upon the haws, in company with missel thrushes, redwings and blackbirds, and they never leave them till all the haws are gone. Last autumn I was standing with a friend in the garden, and we counted more than twenty song thrushes on the two thorns at one time. There is a large increase in the number of these birds in the autumn, caused by the arrival of foreigners, which come in small flocks a few days before the redwings, for which species they are often mistaken. After the haws are gone the thrushes feed upon the berries of a large yew, and now they are devouring the berries of the ivy which covers a large pollard elm growing close to the yew. When fruit and berries are not to be had, the whole of the thrushes feed upon insects, and the song thrush destroys large numbers of snails, and is, I believe, the only British bird which feeds upon them. I perfectly agree with all Mr. Fox has said with regard to the song of the redwing. When assembled in large flocks previous to their departure from this country, they will sit on trees warbling and chattering for hours at a time, but I never heard a solitary redwing attempt to sing, and I believe all the supposed redwings said to have been heard singing singly on the tops of trees were song thrushes.—*Henry Doubleday; Epping, May* 11, 1864.

Curious place for a Blackbird's Nest.—In a thick thorn hedge near Stratford St. Anthony I found an old magpie's nest that had been inhabited by magpies in 1862: on looking into the nest I was rather surprised to find it tenanted by blackbirds; they had built their nest so as to exactly fit into the cup-shaped nest of the magpie. I tried to take both nests together, but on cutting away some of the branches that the magpie's nest was built among, the whole gave way together, probably owing to the magpie's nest having been built so long as to nearly crumble to pieces on the spot.—*Anthony S. Bradby; Moundsmere, Hants.*

A White Blackbird.—A friend residing at Mildenhall, Suffolk, informed me that a white specimen of the above bird has lately been shot in that neighbourhood by a gamekeeper, for whom it was preserved.—*T. E. Gunn; April* 18, 1864.

Ring Ouzel nesting in Yorkshire.—Crossing the moor a few miles north of Keighley this afternoon, I came upon the nest of the ring ouzel, putting the bird off: the nest was built on the ground, in a shallow hole, under a bunch of ling. As I see some difference of opinion is expressed in 'Birdsnesting' about the formation of the nest and the colour of the eggs, I will describe them, to the best of my ability. The nest consisted, first of a layer of the decayed leaves of the ling, damp and muddy as they came from the ground; this was covered above the level of the ground with roots and tufts of grass, pieces of dead ling, and various other rough materials, and the whole lined with coarse grass to the depth of about two inches at the bottom, and gradually becoming thinner to the top: in this nest the bird had clearly used an equivalent for mud, though as clearly had not plastered her nest with it, but had constructed of it the first layer. Of this I am certain, as I brought the nest entirely away from the ground. It contained four eggs: as they were not sitting, I suppose the old bird was about laying again; they are not in the least like those of the blackbird, and if I had not known their origin I should have taken two for those of the missel thrush, as they are remarkably like them, being of a very light green, and blotched with brownish red and light purple: the other two are of a deeper green, so that the blotches, though quite as large, are not so distinct; the eggs are rather larger than a common blackbird's.—*R. Tyrer; Keighley, Yorkshire, May* 1, 1864.

Black Redstart.—I have just seen your description of the black redstart (the male) in 'Young England.' I observe that you have not described the female. I have frequently met with it, and it is very like the female of the common redstart in plumage. We have usually met with the black redstart here in December, January and February. In a severe winter, some years since, I shotone (a female) in April;

but this is unusual. I found amongst my papers a note that "They are tame, taking short flights, and then settling on ledges of the cliffs or on the beach, jerking their tails, like the common redstart, when they settle. I have observed them feeding on small dipterous insects, which are abundant about the heaps of sea-weed. In their habits they seem somewhat to resemble the stonechat, but have the familiar manner of the robin." This I have written as I found it from a rough note, and have not attempted to put it into shape. It is just what struck me when I was in the habit of watching them; but I have not been near their haunts of late, and it is now some years since I have seen one. I do not doubt that they are to be met with, however, in the very same spot where we used to see them year after year, this being one of their characteristics.—*W. R. Hall Jordan; Teignmouth, April* 30, 1864.

Black Redstart at Alton.—Among the rare feathered visitors to this district I have to record the black redstart, which I shot on the 23rd of March. A naturalist here has informed me that during a period of nearly thirty years he knows only of one more specimen of this bird having been found. I first observed it sitting on a hop-pole in a field adjoining the town. The general colour of the bird I obtained is smoke-gray.—*W. C. Saunders; Alton, Hants, April* 21, 1864.

Arrival of the Willow Wren and Swallow.—On the 23rd of March a friend shot a willow wren, and on the previous day a gentleman living in this place observed another bird of the same species in his garden. Whilst out walking on Saturday, the 2nd of April, with a friend, I had the good fortune to notice along with him a solitary specimen of the swallow.—*Id.*

Wheatears in March.—Mr. Pamplin seems to infer (Zool. 9041), because he saw wheatears in the middle of March at Bala, North Wales, that they remain there throughout the winter; but I think you will agree with me that this conclusion is a wrong one. Wheatears are usually the first of our summer migrants to appear, and it is by no means uncommon to see them here by the middle of March. I shot one this year on the 19th of March, and have seen them as early as the 16th of that month; but I should not conclude, therefore, that these birds had wintered here.—*J. Edmund Harting; Kingsbury, Middlesex, May* 11, 1864.

Early Appearance of the Wheatear.—Two instances are recorded in the 'Zoologist' (Zool. 9041) of the appearance of the wheatear in March. On the 29th of March, 1863, I saw one, a male; and on the 12th of last March I saw two, male and female. Mr. Morris, in his work on 'British Birds,' says, at page 173, vol. iii.:—"Sir William Jardine says, that they arrive in Scotland the first week in March." I have repeatedly watched for their appearance in that month in different localities, and never until March, 1863, have I seen wheatears before the middle of April. This year they were seen near Edinburgh about the same time, and their appearance was considered unusually early. The whinchat was also seen about the same time, which most certainly is an early arrival for that bird.—*J. A. Harvie Brown; Dunipace House, May* 6, 1864.

Eggs of Grasshopper Warbler.—I have again been fortunate in obtaining eggs of the grasshopper warbler. On the 21st of May a friend brought me five nice specimens, which a lad had taken from the nest two days previous in Hethel Wood, a short distance from this city: he described the nest as composed of rye-grass, lined inside with the finer material of same; it was placed at the foot of an old stump, hidden by a tuft of grass; the nest contained six eggs, slightly sat upon; one of these he unfortunately broke. A nest of five eggs was taken in the same locality four years since.

Owing to the wary habits of this species its nest is difficult to find, therefore I have no doubt it is thought to be more rare than it really is.—*T. E. Gunn; Norwich, May* 23, 1864.

The Reed Warbler nesting in Gardens.—This very pretty little warbler I had only associated years ago with what I then thought its only haunts, such as reed-beds in fens, marsh-ditches and river-banks—in short, wherever reeds were to be found; but the last few years I have become more intimately acquainted with it in quite another aspect, namely, so near London as Hampstead, where I have a garden, far away from water in any shape, and bordered on two sides by a high road, yet here for some years it has not failed to appear about the middle of May, much later than the arrival of our common warblers; and for the last three years a pair have bred in the garden, the first year in a Corcorus, the nest, as in reeds, being firmly attached to three stems; the last two seasons in a lilac in the same manner. The lilac is close to my hall-door, and neither the noise of children or dogs disturbed them in their labours, and the male sang cheerily through the day, invariably accompanying the female in her search for materials for the nest, but never, that we could see, assisting her in actually carrying such matters, or in constructing the nest itself. They were so far from exhibiting any shyness in their habits, that they rambled over the standard roses, and were constant visitors to the balcony of a Venetian window which was full of plants, and near which some of us were usually sitting. These nests were fastened and held together by any little bits of twine and thread or hair that they could pick up in the vicinity of the house. Mr. Bond suggested the other day that we might have two species of bird at present under this name, but the eggs were exactly similar to those taken from reeds, and at Bath, where the River Avon is bordered by gardens, I have formerly found their nests in shrubs near the water; but I confess I was much astonished to find this bird *entirely* away from water, and so near London. I may add that last summer I found four pairs of this bird here breeding in gardens under similar circumstances. The young, I observed, were very much fed on Aphides taken from a sycamore, the adjoining tree to that containing the nest. As soon as the eggs were hatched, the male nearly discontinued his song, gave up his idle life, and devoted himself to his parental duties.—*Robert Mitford; Hampstead, April* 12, 1864.

Rock Pipit in Norfolk.—On the 7th of March a pair of rock pipits (*Anthus petrosus*) were killed on the river's bank, near St. Martin's Gates, Norwich, a most unusual locality, since the very few birds of this species obtained in Norfolk have been killed on Breydon Wall, near Yarmouth. It is most probable that a few regularly visit our coast in spring and autumn, though unnoticed by the gunners, from their general resemblance to the meadow pipit (*Anthus pratensis*); but, with the exception of one other specimen, these are the only examples of this species that have come under my notice in the hands of our bird-stuffers.—*H. Stevenson; Norwich, April* 27, 1864.

Snow Bunting in Summer Plumage near Penzance.—We have the snow-flake pretty regularly every autumn and winter on our open downs, but I do not remember ever having seen one so late in the spring with the slightest symptom of the black summer plumage until last month, when I was shown a specimen pretty far advanced in summer plumage, which had been shot somewhere between this and the Land's End.—*Edward Hearle Rodd; Penzance, May* 9, 1864.

Brambling in the Chilterns.—Your correspondent Mr. Tyrer (Zool. 9023), in noticing the occurrence of a flock of bramblings at Weston-Turville, asks whether these birds have been previously observed in this neighbourhood. It may be some satisfaction to him to hear that I have for some years past known the parish of Drayton-Beauchamp well, which lies at the foot of the Chilterns, about four miles from Weston-Turville, and I never remember a winter passing without some large flocks of bramblings frequenting the stubbles and stack-yards in the parish.—*H. Harpur Crewe; The Rectory, Drayton-Beauchamp, Tring, April* 13, 1864.

Habits of the Hawfinch.—As Mr. Boulton has kindly made several remarks upon the habits of this bird (Zool. 9042), and has also endeavoured to set me right in various points of my former communication, I will endeavour to explain them more fully. Firstly, as to the contents of the gizzard being the kernels of plums or damsons, and not sloes, I was led to this opinion, and still keep it, by the size of kernels, most of them being only slightly broken: they were far too large for those of the sloe, and the bullace is not very common with us in the south: plum and damson orchards abound everywhere; there is scarcely a cottage without a dozen or more of these trees, and though last year there was not an abundant crop, yet they are generally very plentiful, and once, in our own orchard, rather than be at the expense and trouble of getting them, we let them fall from the trees as food for our pigs. The hawfinch does not, however, limit its meals to the kernels of stone fruit, for my brother, who is now at Weston, has lately caught another with a horsehair noose in our garden. It was in the habit of coming every morning to feed on the seeds of the Portugal laurel: when feeding on these seeds it would naturally take some grit into its gizzard. It soon became quite reconciled to its captivity, and would suffer itself to be fed without any signs of fear. I may nevertheless have been in error as to the triturating substance in the gizzard of the specimen I examined, as I did not apply any lens: it looked far too fine for broken plum-stone, but as Mr. Boulton says that the bird crushes them so fine, it may have been so in this case. I am much obliged to Mr. Boulton for this suggestion, and will not fail to apply it next time I have the pleasure of examining this bird.—*R. Tyrer; Keighley, Yorkshire, May* 21, 1864.

Crossbills in Bedfordshire.—On Monday, the 11th of April, three crossbills were brought to me, killed near Aspley. They formerly were frequently met with about here, but are now of very rare occurrence. I imagine they are not often found in any part of England so late in the spring as April.—*C. Hervey Smith; Aspley Guise, Bedfordshire, April* 15, 1864.

Hooded Crows at Brighton.—On the 29th of February I was surprised by seeing a quantity of hooded crows on the cliffs beyond Brighton, near Rottingdean. I counted twelve feeding voraciously, with jackdaws and rooks, in a wheat-field, and passed quite close without disturbing them.—*C. J. Maurice; East Court Cottage, East Grinstead, March* 16, 1864.

Food of the Rook.—About ten days ago I saw a pair of rooks eagerly tearing to pieces and devouring a dead lamb. They were standing upon the carcass, and while tearing it with their beaks pushed vigorously against it with their feet. When I approached to within some ten paces or so, so intent were they on their meal that they only hopped off to a short distance, each carrying a piece in his or her beak, and not seeming at all ashamed of their "weakness" for "high" meat. I have repeatedly seen rooks, as well as carrion crows, engaged in a like manner, and never knew that it was not generally known. The gamekeepers round this quarter are in the habit of setting traps baited with eggs for magpies, and they repeatedly find rooks taken prisoners instead. I have known also of an instance of a rook being caught by the wing in a trap baited with a piece of a rabbit: no doubt in attempting to escape from the falling "flag" it had stretched out its wing, and thus been made prisoner.—*John A. Harvie Brown; Dunipace, May* 6, 1864.

Habits of the Creeper.—Having been informed that a pair of creepers (*Certhia familiaris*) had built a nest behind the matting that lines the inside of my boat-house, I repaired thither on Tuesday, May 10th, for the joint purpose of fishing and embracing an opportunity of watching the nesting habits of this most interesting little bird. My sister-in-law, who had been sitting there sketching on a previous day, had remarked the fearless confidence it displayed, being apparently completely unembarrassed by her presence, and as it continued to visit and revisit the nest, running in all directions over the matting, she proceeded leisurely to transmit to paper a characteristic portraiture of both bird and nest. I suspect that there may have originally existed a small perforation in the texture of the outstretched matting which induced the bird to make selection of this spot, and which she had personally enlarged to suit her purpose; at all events there was the hole, the edges of which were neatly chipped so as to form a perfect oval, and just large enough to admit with ease the entrance and exit of the bird. From three to four inches below the entrance, between the matting and the outer wooden wall, the nest containing seven eggs was constructed. Anxious to add a couple of eggs to my collection, I had come provided with a piece of wire, with which I successfully extracted them, but think it possible that during the process I might have cracked a third. Be this as it may, as I lay reclining at length, alternately watching the fluctuations of my float and the evolutions of the smoke from my pipe, as it curled gracefully upward on the still air of a bright sunlit afternoon, the little creature presently appeared slyly coursing over the surface of the rough bark around one of the oak-tree posts, which, rising from the deep water, forms one of the main supports of the boat-house roof. I was curious to observe whether the little agile tenant would become aware that its sanctuary had been invaded, and consequently how she would under the circumstances proceed to act. Watching me with furtive restlessness as she sped up and down the surface of a rafter, she now took to the matting, over which she travelled with the utmost dexterity with a series of short sidelong jumps (very much as a skater would make a leap, both his feet leaving the ice at the same moment), but clinging on at each hop to the perpendicular wall with a tenacity that produced an audible crackle of the matting, and with an agility most beautiful to witness. Arrived at the entrance she seemed to be at once aware that her nest had been tampered with, and accordingly made several circuits of the hole, in evident doubt and hesitation, ere she finally disappeared within its dark recess. Keeping my eyes fixed upon the spot, great was my surprise at seeing her presently emerge with an egg impaled upon her bill. She flew directly towards me, when, flurried at discovering my presence, she let the egg drop, and it fell through the open floor and smashed upon one of the seats of the boat underneath. It at once occurred to me that this must have been the cracked egg, which the little creature had immediately discovered and with provident sanitary precaution had thus taken instant measures to effect its removal. She is now sitting hard upon the remaining four eggs, with my best wishes for the welfare of herself and family.—*Arthur W. Crichton; Purchase, Ditchling, Sussex, May* 18, 1864.

Hoopoe in Suffolk.—A magnificent male specimen of the hoopoe was shot at Wortley, Suffolk, on the 20th of April last. Another specimen, also a male, was taken at Lowestoft two or three days previous to the above.—*T. E. Gunn; Norwich.*

Immense Flight of Swallows.—Three immense flocks of swallows passed over the island of Portsea on the night and morning of the 10th and 11th of May, going east or north-east. My attention was first directed to them by the noise they made in passing: the night was dark and cloudy, so that the first and second divisions could not be seen; but the noise of the first division was heard a few minutes after eleven, and continued until twelve o'clock, when all was still till thirty minutes past twelve, when the second division was heard passing over, their noise continuing to be heard until twenty minutes after one, when it ceased. The morning broke beautifully clear, and at half-past three the third and last division was seen passing; they were making no noise and flying steadily over. Do birds of passage make a noise at night for the purpose of keeping themselves together? If not, why, in this instance, did it cease at daylight? These observations can be authenticated by two gentlemen who were with me the whole of the night, taking ten minutes' observations on the pressure of gas, at one of the public lamps in the Landport district.—*Henry Moncreaff; Southsea, May* 26, 1864.

Extraordinary Flight of Swallows.—The following letter appeared in the 'Exeter and Plymouth Gazette' of the 14th of May, and as it is unusual to see swallows migrating in such extraordinary numbers as therein described, and especially in a southerly direction at this time of the year, I have, as it is a short communication, copied it *verbatim*:—

"*To the Editor of the 'Plymouth and Exeter Gazette.*'

"Sir,—Perhaps the following circumstance may be interesting to some of your readers. On Saturday evening last, whilst standing with a friend in my garden, between the hours of seven and eight, we observed a large flight of birds approaching, which proved to be *swallows*. I should say the flight extended over a space of nearly a mile in length, by one-third of a mile in breadth, and that they were many thousands in number. The course they took was from north to south.

"I am, yours truly,

"Instow, May 12th, 1864." "E. T. Fernandez.

I wrote to Mr. Fernandez, and requested him to be good enough to furnish me with any further particulars on the subject, and also to allow me to make use of the above, and received in reply an answer, the substance of which is as follows:—The birds were the common swallow (*Hirundo rustica*, Linn.), and flew in rather a scattered manner, but evenly so, over the space they occupied, all taking the same course from *north* to *south*: they were from two to three gun-shots high, and appeared to be in rather a fatigued condition: one alighted on a telegraph wire, and did not leave until nearly all the rest had passed. It is well known that these birds congregate in large flocks in the autumn before leaving us, but on arriving in spring they are generally seen in pairs. I should like to know if any of the readers of the 'Zoologist' have ever observed a similar migration at this time of the year.—*G. F. Mathews; H.M.S. Warrior, Plymouth, May* 21, 1864.

Arrival of Swallows, Martins and Sand Martins at Blackheath.—At 5.15 P.M. on Friday, the 8th of April, I saw one swallow fly over St. Germain's Place, Blackheath: its flight was due east, weak and weary. On Thursday afternoon, the 21st of April, I saw a pair of swallows and four sand martins flying about the round pond in Blackheath Park. In the afternoon of Tuesday, the 26th of April, I saw a house martin flying over the same pond: it signalized its arrival by pitching right and left into the sand martins located here since the 21st of April.—*Matthew Hutchinson; Woodlands Road, Blackheath, S.E.; April* 27, 1864.

Pigeon laying three Eggs.—I have this day observed a curious fact, or rather freak of Nature. I found that a pair of my fancy pigeons were sitting upon three eggs. That the female bird had laid all three, and at the same time, or, more correctly speaking, in the same nest, and for the one incubation, there can be no doubt; *first*, because the pair of birds in question were in a pen or aviary apart from all other pigeons; *secondly*, because they had only been therein a sufficient space of time to admit of their going to nest *once;* and, *thirdly*, because I made a note of the day on which the first egg was laid, as I am in the habit of doing with all my fancy birds. These three eggs were all perfect in form and size, and the exact counterpart of each other. I removed the three eggs from the nest to-day, and broke them to examine the contents: only one egg contained an embryo. The first egg would be laid ten days ago. The pair of birds were a male "dragon" and female half-bred bird: they were used as "feeders." I have kept pigeons fifteen years, and never before observed an undoubted instance of any individual or variety producing more than two eggs at a time.—*W. W. Boulton; Beverley, April* 26, 1864.

Late Breeding of the Ring Dove.—Last year I took two late nests of the ring dove, each containing two perfectly fresh eggs: the first of these I took on the 16th of September, and the second on the 30th of the same month. I have before taken their eggs as late as the 16th, but they were always pretty far on in the process of hatching. I never before got any so late as the 30th.—*John A. Harvie Brown, Dunipace, Falkirk.*

The Red Grouse and Willow Grouse.—I am glad to find that the long-pending suit of "Red Grouse *versus* Willow Grouse" is again before the Divorce Court, and I trust the jury of ornithologists who try these intricate cases will not suffer it to be shelved again till they have come to a verdict, on sufficient evidence; and either join them together as one species, or separate them for ever as distinct. But I should not again have intruded my own opinion on the question had not my name been mentioned, and my recommendation of a close comparison of their respective eggs been called in question by your last correspondent on the subject (Zool. 9045). I am still, however, of opinion that a careful comparison of a sufficient series of eggs of the two (so-called) species would not be wholly without value in helping us towards a decision. Unquestionably in some families the eggs of certain species bear a very close resemblance to each other (and in such cases it would be manifestly most unsafe to rely too much upon the egg alone, as if it were an unfailing mark of distinction); but this is not invariably, neither is it generally, the case; and a practised oologist will, for the most part, name the species from a close inspection of the egg. Moreover, even in those cases where the eggs of allied species most nearly resemble one another, a very careful and painstaking scrutiny of a sufficient series of eggs will sometimes result in enabling us to distinguish between two species, where at first sight the task seemed hopeless, and the resemblance of the eggs exact: but then we must not be content with a superficial, hasty survey; the examination must be close, and deliberate, and minute, and that not of one or two specimens only, but of a sufficient series,

"Nocturnâ versate manu, versate diurnâ."

After such an examination I have more than once been surprised at the result, and at the difference which a careful observation enabled me to perceive in two sets of eggs, which before seemed perfectly identical in size, form and colour. This has been especially observable in the eggs of some of the ducks, at first sight apparently indistinguishable from one another. I am far from saying that this is the invariable result, or that, with all our pains and accuracy, the eggs of closely-allied species can *always* be distinguished; but I do say that in investigating a doubtful species the evidence of the well-authenticated egg is *generally* of no slight value towards either corroborating or disproving our opinion. And therefore, I repeat once more, let a sufficient series of the egg of the willow grouse be carefully compared with those of the red grouse, and the result of the comparison will, in my judgment, go a long way as evidence conducing to a verdict.—*Alfred Charles Smith; Yatesbury Rectory, Calne, June* 11, 1864.

Partridge alighting on a Tree.—Mr. Stevenson asks (Zool. 8846) whether it was a specimen of the redlegged or of the common partridge which I saw alight on a tree. I can confidently affirm that it was no other than the common partridge, as I had a very close view of it, both when it flew up and while it sat on the tree. The redlegged partridge is a rare bird here, and I have never heard of its capture since 1860, in Stirlingshire: one was killed in the season of that year on the grounds belonging to Lord Dunmore.—*J. A. Harvie Brown.*

Note on a Gray Hen killed by a Sparrowhawk.—About three weeks since a female sparrowhawk, a bird of last year, was shot in the New Forest in the act of devouring an adult gray hen, which it had apparently just captured. Both birds have been preserved by Mr. Wright, bird-stuffer, of Lymington, and I saw them at his house this day. This is, I think, a remarkable instance of the courage and power of the female sparrowhawk.—*J. H. Gurney; May* 26, 1864.

Skeleton of the Moa.—I have this morning been assisting in unpacking and arranging the bones of a nearly complete skeleton of the Dinornis robusta, the great New Zealand extinct moa; but it cannot have been long extinct, for the leg-bones of this bird have the periosteum as perfect and shining as it is on the corresponding bones of some ostrich skeletons which I mounted about thirty years ago. This bird has several ribs on one side still attached to the dorsal vertebræ, *in situ*, as when the bird was living; the inner right toe has every bone *in situ*, with its cartilages, and the external corrugated skin of the toe just as when alive; a patch of skin nearly a foot square still adheres to the lower part of the back on the pelvic bones, covered with stumps of feathers still sticking out of the skin; some of the toe-bones show signs of decay, but the bones are not fossilized. I think some of your readers may be interested with this slight notice; I cannot give a more scientific report, because I think it probable that Dr. Gibson, of York, whose brother has sent us this prize through him, may wish to send some account of the skeleton to some of our scientific periodicals, and I have no right or wish to interfere with his just claims. The pelvic bones are complete, some of the cervical vertebræ are wanting, the caudal are complete.—*Thomas Allis; Osbaldwick, York.* [More on this subject hereafter.—*Edward Newman.*]

Eggs of the Thickknee Plover.—In the early part of this month, in company with my friend Mr. N. F. Dobrée, I visited an extensive warren called Tollington Moor, near Market Weighton, for the purpose of obtaining a few eggs of the snipe: only one nest with four eggs was found, but we were rewarded by finding two nests of the thickknee plover, each containing one egg freshly laid. The birds were seen and recognised in both cases.—*George Norman; Hull, May* 4, 1864.

Gray Plover on the Lincolnshire Coast.—The gray plover is now very plentiful on the coast. These birds, I notice, visit us in much larger numbers during the spring than on their return south in the autumn. A large flock, which I noticed through a good glass to day (May 10th) was composed of birds in every state of plumage, from the full summer dress, the under parts deep black, bordered with white, to others with their breast mottled with white, and some showing as yet little change from the usual winter garb, except a slightly darker plumage. The gray plover and the whimbrel are the last to leave our coast in the spring. I have seen them on the Humber flats, in considerable numbers, as late as the 27th of May.—*John Cordeaux; Great Cotes, Ulceby, Lincolnshire.*

Note on the Whimbrel on the Lincolnshire Coast.—Amongst the many waders which for a time frequent the wide mud flats bordering the Humber at this season, on their passage northward, the whimbrel is this year unusually plentiful. On the 6th of May I counted in one flock alone upwards of eighty of these birds, and the same morning saw several smaller flocks in the neighbourhood feeding on the mud flats and in the grass marshes; indeed they appear to be of much more frequent occurrence on this coast than formerly. During the last year or two I have noticed a very considerable increase in the numbers which visit us, both during the spring and autumn. I was talking the other day to an old gunner who has been nearly all his life a wild fowl shooter on this coast; he told me that he never remembered in any previous season anything like the number of whimbrel we have had this year, and had not before known them to congregate in such large flocks.—*Id.*

On the Breeding of the Green Sandpiper (Helodromas ochropus).—Ornithologists are aware of the very different positions often chosen for their nests by birds of the same species. Thus eagles may be found sometimes building their eyries upon trees, at others on cliffs, and again sometimes absolutely upon the flat ground. The same may be said of some species of falcons and of some herons. Certain crows also and the stock dove (*Columba œnas*) exhibit a like disparity of habit. Even among the members of the Gallinaceous order a similar diversity is occasionally, though rarely, to be observed. I have been told, on authority I cannot question, of a common pheasant (*Phasianus colchicus*) and of a capercally (*Tetrao urogallus*) each choosing a nest in a tree wherein to lay its eggs. Instances of the common wild duck (*Anas boschas*) breeding in hollow stumps of trees are very frequent; and with the ducks of the genus Aix this seems to be the normal mode of nidification. But, excepting in the last case, this peculiarity in the selection of a site for the nest seems to result from the particular fancy (or instinct, it may be) of the individual; and in that exceptional case the general habits of the birds are so essentially arboreal that we need not wonder at the fact of their using trees for their nurseries as well as for their usual places of lodging. The only instances parallel to the one I am going to adduce are, so far as I can call to mind, those of the goldeneye (*Clangula glaucion*), the goosander (*Mergus serrator*), and the smew (*Mergus albellus*). Each of these three birds departs from the manner of nidification which obtains among its brethren, just as I shall show that the green sandpiper (*Helodromas ochropus* *) does. Though I do not pretend to lay before you any novel facts this evening, yet it will be, I think, admitted that hitherto we have had in England but little positive information on the mode of breeding of the green sandpiper; such as it is, however, I will proceed to notice it. First, I must say that I think the story of the nest of this bird "by the side of a clay-pit" in Norfolk, as told in Mr. Yarrell's 'British Birds' (vol. ii. p. 529) and in Mr. Lubbock's 'Fauna of Norfolk' (p. 75), can hardly be relied on—not, of course, that there is the slightest reason to doubt the implicit good faith of Sir Thomas Beevor, on whose authority it appears to rest. Next there is the statement contributed to the last edition of Mr. Hewitson's 'Eggs of British Birds' (ed. 3. vol. ii. p. 334*) by Mr. Tristram, to the effect that he found the species breeding near sluggish streams or mountain tarns between Bodö and Quickjock in Lapland. Now this particular district has since been visited by three other excellent observers, to no one of whom did the green sandpiper reveal itself. I therefore hope I may be pardoned for suggesting the possibility of a mistake in my friend's assertion. In the 'Naumannia' for 1851 (vol. i. part 2, p. 50), Herr Pässler mentions that he had, through his friend the Oberförster Wiese, obtained an egg of Totanus glareola, with the remark that this species of sandpiper always "nests upon a tree;" but in the same periodical for 1852 (vol. ii. part 1, p. 95) he states that Baron von Homeyer had informed him that the egg in question was not that of T. glareola, but of T. ochropus, and adds that during his stay at Haff he had seen many nesting-places of this latter species; they were on the borders of "Elsenbrüche,"—*quære*, swamps of the service-tree (*Pyrus domestica*)?—in the middle of the forest, where the trees stand upon hillocks. In the 'Journal für Ornithologie' for 1855 (vol. iii. p. 514), the above-mentioned Herr Wiese, writing on the Ornithology of Pomerania, especially in the district of Cöslin, says that he had first heard from an old sportsman, who knew the peculiarities of all the forest animals, that the Totanus ochropus nested in old thrushes' nests, which information, he remarks, "I naturally did not believe;" but he states that some years after, in 1845, he obtained from the same man four fine eggs of a bird of this species, which for many years had been wont to nestle in an old beech tree. Still doubtful on the subject, the following spring he himself found a nest of the bird on a pine which had a fork about five-and-twenty or thirty feet high. "Joyfully," he says, "I climbed the tree, and found in that fork four eggs on a simple bed of old moss." He goes on to say that in the spring of 1853 he again obtained four eggs of the same species; and in the spring of 1854 (the year he was writing) he found a nest placed in the old nest of a song thrush, out of which the shed buds of the beech had not so much as been removed. There were four eggs, which were hard sat upon on the 25th of May. In the 'Naumannia' for 1856 (vol. vi. p. 34), in an account of an excursion in Western Pomerania ("Vorpommern"), Dr. Altum states that Totanus ochropus returns annually to its old nesting-places, these being misseltoe thrushes' nests, whose remains were still to be seen, often some hundred yards distant from the nearest pool, and their height fifteen feet or more from the ground. The same journal for 1857 contains a valuable series of observations on the birds of the same district by Herr W. Hintz, in which the author says (vol. vii. part 1, p. 14) that on the 6th of May, 1855, he found three eggs of this bird on an "Else" (*quære*, Pyrus domestica?) in an old dove's nest, as he thinks, though he states it might have been that of a jay. Formerly, he proceeds to remark, he had only observed this sandpiper to use old nests of Turdus musicus, excepting once, when he found some young ones, only a few days old, hard by a river-bank on a layer of pine-needles on an "Else"-stub. Soon after the publication of this last piece of intelligence, appeared that part of Herr Bädeker's

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* The osteology of the Tringa ochropus, *Linn.*, presents such a marked deviation from that of the other Totani which I have examined, that I do not hesitate in this case to follow Dr. Kaup in considering it the type of a distinct genus.

'Eier der Europäischen Vögel,' wherein (fol. xxx. No. 5) Helodromus ochropus was treated of, and a concise summary of the foregoing accounts was given. This was remarked upon by the writer of an article in the 'Ibis' for 1859 (vol. i. p. 405), and thus the curious facts which I have above detailed were made generally known, for the first time I believe, to English readers. In 1860 a short recapitulation of them was also published by my friend Dr. Baldamus, in the continuation of Naumann's celebrated 'Vögel Deutschlands' (vol. xiii. p. 241). Towards the close of the same year also that excellent observer who veils his name under the signature of "An Old Bushman" contributed a series of articles to the 'Field' newspaper, in which he described his own experience of the green sandpiper's way of nesting in Sweden. The Natural-History editor of that paper, not knowing what had been already written, exhibited some signs of scepticism on the subject, whereupon his correspondent reiterated his statement, saying ('Field,' No. 411, November 10, 1860, p. 393), that "there is no doubt about the matter," and adding that he "never took the nest on the ground." I have now only to read to you a portion of a letter, dated November 27, 1861, which I received from my friend Pastor Theobald, of Copenhagen. He says as follows:—"The nidification of Totanus ochropus is so remarkable that I do not fear to trouble you with the history the Forester Hintz" (whom I have mentioned above) "has given me. He writes,—'This year I succeeded in finding the nest of Totanus ochropus. On the 9th of May I took four eggs of this bird; they were found in an old nest of Turdus musicus, and seemed to have been incubated about three days. The very same day there were brought to me four other eggs of this bird, also found in a thrush's nest. * * * The 10th of May there was shown to me a nest, thirty feet high, on an old birch, the bird having chosen an old decayed nest of a squirrel. This nest was the highest I have ever seen. Three young ones had just been hatched; in the fourth egg the bird was about to break the shell. One jumped down and concealed itself on the edge of a water-pool. The 11th of May a nest with four fresh eggs was found, but they did not come into my hands; this was in an old pigeon's nest on a Pinus rubra, and full of dry pine-leaves. The 20th of May two eggs, almost burst by the young, were found in an old thrush's nest, the two missing birds having most likely already left the nest. The 22nd of May four young ones, apparently but a few hours old, were found in the old nest of a Lanius collurio, in a juniper three feet high. The 24th of May four young ones were found in the hole of a Populus tremula thrown down by the wind. The year before Muscicapa luctuosa had its nest in the trunk as it lay on the ground; this year Totanus ochropus had chosen the same opening. When I approached the trunk, the young ones, perhaps four-and-twenty hours old, jumped away and hid themselves in the grass among the branches. All these nests were near the water,—two on the edge of a rivulet, the others on wet morasses, the distance from the water being at most six feet.'" I have the pleasure of exhibiting to you a small series of a score of the eggs of this bird, as well as three nests. The latter were sent me by Mr. H. W. Wheelwright, and were obtained by him this year in Sweden. They are so ragged and dilapidated that, as is often the case with ancient ruins, it is not easy to say of what race the builders were. From one of them, five-and-twenty feet up in a fir tree, the mother was killed on the 28th of May, and I produce her skin. Three of the sets of eggs belonged to these nests; a fourth set was the contents of Forester Hintz's nest of the 9th of May, 1861, mentioned in his interesting letter. This I owe to Mr. Theobald and some other friends in Copenhagen. The remaining four eggs are odd ones obtained by Mr. Wolley and myself from Dr. Kjærbölling.—*Alfred Newton.**

Bartram's and the Purple Sandpiper in Sussex.—I purchased at a sale of birds belonging to the late Mr. Wille, of Lewes, on Monday, April 18th, a beautiful specimen of Bartram's sandpiper, shot at Newhaven some time between 1836 and 1840. I also bought a specimen of the purple sandpiper, which the label states to have been stuffed by Swaysland, and shot at Pevensey Bay, in December, 1838. Mr. Wille was exceedingly particular about the authenticity of his birds, some of which fetched high prices.—*John Dutton; Eastbourne.*

Curlew Sandpiper and Dunlin on the Lincolnshire Coast.—The curlew sandpiper is not a common visitant on this coast: during the last week in April I saw several of them on the flats, and managed to approach, under cover of a bank, within a few yards of one which was feeding in a shallow pool on the shore: I had a very distinct view of its curved bill: when flying the white upper tail-coverts were very conspicuous. It is a slightly taller and more slender bird in appearance than the dunlin. I have noticed several on the flats this spring feeding in company with the dunlin. The dunlins are now (May 6th) in full summer plumage: a few probably remain and breed in the neighbourhood, as I have seen a few of these birds on the coast all through the summer months.—*John Cordeaux; Great Cotes, Ulceby.*

Reeve killed near Grangemouth.—I ought to have mentioned long ago the occurrence of a somewhat rare bird in this locality. On the 10th of September, 1862, while down at the coast shooting between Grangemouth and Kincardine, my friend Mr. J. R. Cook killed a very fine specimen of the reeve, which I have now in my collection. It is of very rare occurrence hereabouts.—*John A. Harvie Brown.*

Spotted Crake in Norfolk.—Five or six good specimens of the spotted crake have been taken in this locality during the course of this week.—*T. E. Gunn; Norwich, April* 8, 1864.

Little Crake in Cambridgeshire.—It is with much pleasure I embrace this opportunity of recording the occurrence of the little crake in Cambridgeshire, a male of this species having been taken alive on the 26th of March, by a labouring man in Chesterton Fen, about two miles north-east of Cambridge: it is said to have been seen frequenting this place some time prior to its capture: the man who caught it states that he kept it alive for a few days, and that its actions were most graceful. I will now describe its exact measurements, &c., which I took a few hours after its death. From tip of tail to tip of beak the extreme length was 8¼ inches, and from tip to tip of extended wings 12½ inches. Irides brick-red, with a slight tinge of orange-yellow. Mandibles cuneated. Beak of a beautiful soft dark apple-green, slightly yellowish near the tip; extreme tip greenish horn-colour. Claws lightish horn-colour; under portions of feet of a dirty slaty hue. Owing to its having been kept in confinement a day or two after its capture, the bird was in very poor condition. Heart particularly elongated and slender; testes large and prominent; stomach quite round and compressed, the internal cavity large and quite destitute of food, containing only some small particles of flint gravel, such as is found in fenny water. I have presented its sternum to the Oxford Museum: the bird itself is now in the possession of Mr. W. C.

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* From the 'Proceedings of the Zoological Society of London,' December 8, 1863: communicated by the author.

Horsfall. The previously recorded instances of the occurrence of the little crake in Britain are as follows:—The first specimen occurred in Yorkshire, on the banks of the Yore, on the 6th of May, 1807; a second, in the same year, at Adwick, near Manchester; the third, near Ashburton, Devon, in 1809; the fourth was killed in Norfolk in May, 1812; the fifth, near Chelsea, also in 1812; and in March, 1826, a female specimen was caught at Barnwell, near Cambridge. I cannot refrain from mentioning the singularly interesting fact that the first example and the last in this county occurred in the same month and at near the same spot, the boundaries of Barnwell and Chesterton joining at the piece of fenny ground in which these captures occurred, and both specimens were caught, not shot. The nidification of this species commences at the end of May. Meyer says the little crake has a very great peculiarity that belongs solely to itself,—that is, its curiosity. If a person carefully approaches the spot where a bird is known to be, it may be seen to come to the edge of the swamp and utter its piping call-note, as it were in astonishment at what it sees.—*S. P. Saville; High Street, King's Lynn, May* 11, 1864.

Early Breeding of the Woodcock.—I send you a note of the early breeding of the woodcock, at least what I consider early, as in this part the weather has been very cold with frost. The nest was found on the 13th of April in Methven Wood, containing four eggs, very much darker than any eggs I have seen of the woodcock, the larger end quite dark brown; they were close upon hatching, and, as it requires seventeen days' incubation, some of the eggs must have been laid at the latter end of March. Last year I saw a nest, containing four eggs, on the 6th of July.—*T. Brunton; Methven Castle, Perth, April* 18, 1864.

Gray Lag Geese in Norfolk.—On the 5th of March I purchased in our fish-market a fine specimen of that now scarce bird, the true Anser ferus, or gray goose, and on the 12th of the same month another, both having been killed out of a small flock on Ludham Broad. On dissecting these birds I found them both males, and evidently adult, but in neither case was there any indication of the white front observable in many birds of this species, and the under parts of the breast presented only the faintest indication of the cross bars, which in some specimens are almost as marked as in the laughing goose (*Anser albifrons*). The first bird, which weighed 7½ lbs., measured 55 inches from tip to tip of wings; length from tip of beak to end of tail 33 inches; wing from carpal joint to end of second quill 18 inches; beak from base along the upper surface to the nail 3 inches; tarsus 3½ inches; middle toe and claw 4 inches; inner toe 3⅜ inches; outer toe 3¾ inches; hind toe and claw 1⅛ inch. Feet livid-pink; claws slate-colour; beak pink flesh-colour, nearly purple (dead bird) round the edge of the mandibles; nail white; eyelids white all round; eyerials red-hazel, very dark. The second specimen differed only in being about one inch longer from beak to tail, and the same in extent of wings. In both cases the stomachs were filled with short wiry coarse grass, having a brackish smell.—*H. Stevenson; Norwich, April* 27, 1864.

The Flamingo.—Not far from this is a small salt lake, which I had visited for a few days during the previous spring, and which abounds in birds of every variety. Conspicuous among them is the flamingo. On approaching the lake, a long white line could be seen stretching right across it, looking somewhat, by its slightly undulatory motion, like the foam of a line of breakers on a reef. But the alarm is given, the white line becomes animated, rises and expands,—first of a snowy white, then, as the birds simultaneously turn, unfolding thousands of black wings, it appears a dark, speckled, confused mass; then, as they wheel from the spectator, the soft pink colours of their backs and wing-coverts absorb all other hues, and, screaming with outstretched necks, they fly off, an animated, rosy cloud. It is the most gorgeous sight on which the naturalist's eyes can feast. The flamingos are most difficult of approach; and it is only by a chance flock crossing overhead that a shot can be obtained. But, though the flamingos have gone on the first alarm, myriads of birds remain; ducks are swimming literally *en masse;* clouds of the pretty white-winged black tern are playing overhead, and making feints almost within reach; while the beautiful blackwinged stilt, the tamest of waders, daintily lifts his long pink legs as he gracefully stalks through the shallows, or more hurriedly leaves the nests which are most profusely scattered round us, unprotected and unconcealed amid the mud and grass. The opposite side of the lake is bordered by a mass of tall reeds, into the recesses of which the water hens and purple gallinules are hurrying, and from whose thickets resounds the harsh note of the great sedge warbler or thrush nightingale, mingled with the gentler strains of many lesser aquatic warblers. On all sides of us the collared pratincole is exercising its arts, like the lapwing, to lure us from the eggs which lie scattered on the hard dried mud, dropped by threes into any chance camel's footmark; and groups of little Kentish plovers are running rapidly by the water's edge.—*Tristram's 'Great Sahara,'* p. 62.

Shoveller near Beverley.—On the 15th of April a male of this species, in full adult plumage, was shot by Mr. Kemp, gamekeeper, of Skerne, near Driffield, on the River Hull, near to a place called Brigham. The bird was alone. I had it in the flesh, and on dissection found, as I had anticipated, the gizzard was modified and beautifully adapted to the bird's peculiar habits and food. The organ was relatively small in proportion to the size of the bird and to the gizzard in other species of this great family. I attribute this relative inferiority in the dimensions of the organ to the modification of its parts, powers and functions. Most of the ducks feed more or less upon grain, grasses, seeds and vegetable matters generally, and in consequence the muscular walls of their gizzards are immensely developed, in order to render the organ capable of pulping its contents by mechanical force; but in this species I found the muscular walls of the gizzard comparatively thin and feeble in their development. The ventriculus succenturiatus was considerably dilated and proportionally larger and more highly developed than in those specimens of the other ducks I have had the opportunity of examining, and indeed the whole organ approximated more closely to the compound stomach of the mergansers, &c., than that of any bird I have dissected. The form and arrangement of parts in the organ itself bespeak the natural food of the bird, *viz.* insects, which are searched for, captured, and separated from water, weed and mud by the deeply fringed or pectinated bill. When received into the stomach the food is digested partly by the action of natural solvents, and partly by mechanical grinding force. The bill itself is a very beautiful provision of Nature for finding and securing the bird's necessary food. I believe it to be endowed with exquisite powers of sensibility, and imagine that by means of this sensibility the bird finds its prey, rather than by means of the senses of smell and sight, which appear to be only secondary auxiliaries in detecting the food. The broadly expanded convexity of the lower third of the bill is dotted over with minute depressions, which I believe correspond to an equal number of nervous filaments of sensation, brought at these points very near to the surface, as in the snipe and other birds which hunt for their prey in like manner. The unusual breadth of the bill affords space for a greater number of nervous filaments, and is brought in contact with a greater surface of water and mud whilst feeding, so that the bird hunts its ground more rapidly than it could were the bill formed on any other plan. Again, how beautiful is the arrangement of that fringe or ciliated border which is spread around the outer and lower margin of the upper mandible, directed downwards along two-thirds of its extent, and inwards along the remaining third! By this arrangement nothing can be lost; every mouthful of water and mud being perfectly filtered, and the solid contents and inhabitants being thus retained or rejected subject to the will or instinct of the bird. The unusual length of the bill enables the bird to search a greater depth as well as expanse of mud in pursuit of its living prey. The stomach of the bird I dissected was nearly empty, and contained chiefly minute gravel and vegetable matters, most probably swallowed *with* the food, rather than *as* food, although it is not improbable that this duck may resort to the softer and less highly organized forms of vegetable life when its more natural sustenance is scarce. The shoveller is a rare duck in this neighbourhood. I possess the only pair that have been shot near Beverley to my knowledge or recollection.—*W. W. Boulton; Beverley, April* 21, 1864.

Crested Grebe in the Humber.—Mr. Boulton will, I trust, pardon me for putting him on his guard when purchasing specimens in the Hull Market. Dealers in game here are by no means particular in giving a wrong history of any bird they may have for sale, and will frequently palm off a specimen as "British killed," if not closely questioned. The specimen of the horned grebe alluded to by Mr. Boulton as having been killed in our river may certainly be British, although I have never heard of the bird being seen on the Humber. According to my opinion, it is far more likely to have come with the large importations of birds we have lately received from Holland, Norway, &c. Only last week I examined a large number of ruffs and redshanks from Rotterdam, which would probably all have been described as home-killed had the dealer suspected I examined them as a naturalist. During the winter months the importation of game from Norway has been of a sadly miscellaneous character: as an instance I give a list of Norwegian birds offered as articles of food in one dealer's shop: capercaillie, black cock, hazel hen (*Tetrao bonasia*), willow grouse, longtailed and pintailed ducks, redthroated diver, Eider duck, cormorant, gannet, guillemot, and a host of others rather too strong in flavour to be palatable, I should imagine.—*George Norman; Hull, May* 4, 1864.

Doubts as to the Occurrence of the Ruddy Shieldrake and Spotted Sandpiper at Epworth.—In Mr. Hudson's communication (Zool. 9046) these two birds are recorded as having occurred at Epworth, and the record has induced several communications expressing doubts. It has always been my endeavour to avoid the offence which is frequently given quite unintentionally by the mode in which such doubts have been expressed, and I will therefore, instead of printing the communications I have received on this subject, invite Mr. Hudson to give us further information on the two birds mentioned, first offering a few words on the species in question. The ruddy shieldrake (*Anas rutila* of Pallas) is one of the very rarest of our occasional visitors, and a specimen of the common shieldrake (*Anas tadorna* of Linneus) may possibly have been mistaken for it. The spotted sandpiper (*Totanus macularius* of Temminck) is an American bird, and has never been obtained in Great Britain at all, the figure in Mr. Yarrell's work having been drawn from a skin which has been proved to be North American, and is now in the possession of Mr. Gurney. That two such birds should have occurred at the same spot, and within a month of each other is very remarkable.—*Edward Newman.*

Barrow's Goldeneye.—In printing Mr. Graham's communication (Zool. 9039) the locality where this bird was formerly obtained should be Iceland, not Ireland: there was not a single name of place or bird legibly written; I guessed at them as well as I could; but I must express a wish that correspondents would exercise a little more care in their MS.—*Edward Newman.*

Puffin in Sussex.—A very beautiful specimen of the puffin has just been brought to me, shot off our town this morning: it is a very rare bird in this part of the channel; I never previously obtained one during my residence here.—*J. Dutton; Eastbourne, April* 20, 1864.

Ringed Guillemot off Eastbourne.—Yesterday I had brought me for inspection a beautiful specimen of the ringed guillemot, shot off this town on the morning of that day. It was in company with common guillemots, of which birds there are great numbers off our coast at the present time.—*Id.; April* 19, 1864.

Remarks on the Exhibition of a Natural Mummy of Alca impennis.—For the last twenty-one years, since the appearance of the part of Mr. Yarrell's 'History of British Birds' containing his account of Alca impennis, wherein was cited Mr. Audubon's statement that that species bred on an island in the neighbourhood of Newfoundland, the attention of ornithologists in this country has been more or less directed to that colony, in the hope of obtaining thence specimens of this rare and curious bird. Mr. John Wolley, with his usual sagacity, applying the knowledge he had culled from his extensive researches among the works of our older naturalists, not only soon made out the truth of Willughby's supposition, "Penguin *nautis nostratibus dicta, quæ* Goifugel *Hoieri esse videtur*" (Ornithologia, Lond. 1676, p. 242), but found that the name was still persistent among those who were yet engaged in the cod-fishery in the Newfoundland seas. Among his various memoranda I find one, apparently written about the year 1850, to this effect:—"In Newfoundland, Funk or Penguin Isle is 170 miles north of St. John's, and about thirty-six miles north-east by east from Cape Freels, the north headland of Bonavista Bay. There are also Penguin Isles two or three miles from shore; Penguin Islands, too, in the middle of the south coast of Newfoundland." This note was evidently written after making a careful examination of the map; and I well remember, in February, 1856, going over a chart of the North Atlantic with him, in which he had previously marked the various places known as "Penguin Island," "Bird Rock," and the like. To the best of my recollection, he also told me, either at the same or some former period, that in the course of his reading he had come across various notices of "penguins," contained in the narratives of ancient voyages to that part of the world. All this time, however, I had not been altogether idle in the way of collecting (or at least seeking for) information on the subject. In the summer of 1853, as I have elsewhere stated,* a boatman at Torquay, then about seventy years of age, and by name William Stabb, told my brother Edward and myself that in former days he used to follow the Newfoundland cod-fishery, and that he had seen penguins off that coast. He added that they used to resort by hundreds to some islands there to breed, but were destroyed for their feathers, being driven up in a corner by people in boats. This practice, however, must have nearly or altogether ceased in his time; for he stated that he had never seen but two or three birds himself, and never a dead one. I mention these facts merely to show that Mr. Wolley's determination to work out the history of the gare-fowl or northern penguin was formed prior to his acquaintance with Professor Steenstrup's valuable discoveries, and to their publication in the elaborate and excellent article (Vidensk. Meddelelser, 1855, pp. 33—116) on this bird, to which it always gives me so much pleasure to refer. When Mr. Wolley, later (in 1856), became aware of what that illustrious naturalist had ascertained, he was more than ever bent upon prosecuting his researches; and, acting upon the information I received from him, I at once set about doing what I could to further them.* Believing at the time that no example of the bird's skeleton existed in any of the European museums, and having great confidence in the trustworthiness of Herr Stuvitz's statement, as given by Professor Steenstrup (*loc. cit.*), that there were still many of its bones to be found on Funk Island, I began to address letters of inquiry respecting them to almost every one I could hear of in Newfoundland who seemed likely to be able to give assistance. I need not here go into details. For a long time I could get no response from any of those to whom I wrote; some of my epistles were returned to me through the dead-letter office; and occasionally I almost despaired of calling attention to the subject in that colony. At last I had the great pleasure of receiving from the clergyman of the Island of Fogo, the Rev. Reginald M. Johnson, a reply which, in the most obliging terms, promised me his valuable help in the matter. Still the chances of procuring specimens of bones that would really be serviceable towards determining the osteology of Alca impennis were not good. Though when Stuvitz, in 1841, visited Funk Island the bones were in quantities (*i Mængde*), many causes during the time that had since elapsed might have scattered or destroyed them. The locality, as I have before shown, was a distant one, and, like all resorts of the gare-fowl as far as I know them, not easy of access. Stuvitz stated there were but two landing-places, and these only to be attained by a hazardous leap (*kun ved et voveligt Spring*). These latter particulars were confirmed by Mr. Johnson; and in the last letter which I had from that gentleman (only a few weeks ago) he told me he had come to the gallant determination to make the expedition himself, as without him he was sure all endeavours to obtain the bones would fail. Meanwhile the Bishop of Newfoundland, in the course of one of his visitations, had been shown by Mr. Johnson my letters, enclosing sketches of the principal bones and other papers relating to the subject, and most kindly volunteered to give me all the aid in the matter which his high position afforded. When the Members of this Society know the result, I think they will congratulate me on my good fortune in having excited his lordship's interest. After several other friendly letters, I had three days ago the great pleasure of receiving one in which the Bishop informed me his success had surpassed anything I could have anticipated; for his lordship had done no less than secure me what may be not inaptly called the "mummy" of an Alca impennis, which, having come into my hands yesterday, I have now the honour of exhibiting to the Society. It appears that the Colonial Government have recently conceded to a Mr. Glindon the privilege of removing the soil from Funk Island; for this soil, being highly charged with organic matter, is consequently valuable as manure when imported to Boston and other places in North America. The Bishop, through Mr. N. R. Vail, a gentleman of the United States, well informed on scientific subjects, and therefore aware of the interesting nature of the research, made application to the lessee of Funk Island, who ordered his men employed there to use their best endeavours to obtain for me the bones of the penguin. They appear to have done their work very effectually; for I hear that they "brought away many puncheons of bones and other remains"—of course not all necessarily "penguins"— which I believe are now on their way to New England, where they will doubtless be readily bought up by the farmers, though I trust some may be rescued from ignoble uses by the American naturalists. This mummy, however, the Bishop tells me, was "found four feet below the surface, and under two feet of ice." I need scarcely point out to the Society what an advantage it is to have obtained so many bones undeniably belonging to one individual bird. Though the skeleton is not perfect, it is plain that we have here at least one side of the entire vertebral column. The extremities of the limbs are altogether wanting on either side; and though this is greatly to be regretted, it is some consolation to think that a knowledge of what these parts are like in Alca impennis may be, with a little trouble, supplied from almost every one of the sixty-three or sixty-four stuffed skins at present known to exist.* I do not, however, mean to prolong these remarks by making any observations on the osteological structure of this bird. That I have reason to hope may be fully described by a far more able pen; for it is my intention to place the specimen I now exhibit in the hands of Professor Owen, trusting that he will make it the subject of one of those monographs which have so materially enriched our series of 'Transactions.' I have but to say in conclusion that, so far as I know, my "mummy" is, with one exception, the only approach to a complete skeleton existing in Europe. That exception is the specimen, nearly perfect, in the Osteological Gallery of the Museum of the Jardin des Plantes at Paris; for the remains of the two gare-fowls killed on Eldey in 1844, which were sent to Copenhagen, and are still preserved in the Physiological Museum of the University there, have been dissected with a view to show the different systems of organs; they are therefore even less available to determine the general osteology of the bird than are the various loose bones which, through Stuvitz's labours, exist in the Museums at Christiana and Copenhagen, that of our Royal College of Surgeons, and in my own collection.—*Alfred Newton.*†

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* 'Zoology of Ancient Europe,' London and Cambridge, 1862, p. 30.

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* Cf. 'The Ibis,' 1861, p. 397.

Ornithological Notes from Shetland. By HENRY L. SAXBY, M.D

(Continued from p. 9096.)

Raven.—Ravens having hatched have now become very bold and mischievous. I procured fresh eggs from Burrafirth on the 16th of

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* Mr. Blyth, just six and twenty years ago, exhibited to this Society some bones which had been left in a preserved skin of this bird (P. Z. S. 1837, p. 122; and 'Ibis,' 1861, p. 396, *note*). Within the last year, Mr. John Hancock extracted from his own beautiful specimen, and from the very ancient and interesting example in the Newcastle Museum, *every bone* they contained, without doing the slightest damage to the skins, as might be seen at the late Meeting of the British Association (Cat. of Exhibition, Nos. 180, 185).

† From the 'Proceedings of the Zoological Society of London,' November 10, 1863: communicated by the author.

April, and upon that day half-fledged young were also taken from the same range of cliffs. A well-marked instance of the attachment of this bird to its nest occurred about the end of last month in the Island of Uyea, where a pair have long been in the habit of building in the almost perpendicular cliff of a lonely "geo," or deep rocky inlet of the sea. A party of boys, finding that the nest was beyond their reach, threw stones into it from above, laying it in ruins, and breaking the three eggs which it contained, but, strange to say, without causing the birds to desert the spot; for in less than a fortnight afterwards, not only was the nest repaired, but it even contained a fresh set of eggs. As a rule, destruction of the eggs does not act as a sufficient warning, but if the young are taken or destroyed another situation is nearly sure to be selected by the old birds the following spring. The usual number of eggs is five, but sometimes six may be found: I have often observed that after four have been laid, every additional one is paler in colour and longer in form. With this exception, eggs from the same nest bear considerable resemblance to each other in colour and size, but those from different nests vary greatly in both respects. It is said, and apparently with some truth, that those eggs which are of the short roundish form are laid by young birds; some which were taken last year are very little larger than those of the carrion crow. In these islands ravens breed in the highest and most inaccessible of the sea-cliffs, and perhaps, in nine cases out of ten, the rock immediately above the nest overhangs, while, for many feet below, it is too smooth to afford foot-hold even to the most experienced cragsman; therefore it is comparatively seldom that the nests are robbed. About ten days ago some whales were driven ashore at Uyea Sound, and of course the ravens have not overlooked the attraction offered by the still exposed carcases. Shortly after sunset at least fifty ravens and about double that number of hooded crows retire from the feast and fly heavily across to the neighbouring island of Uyea, where they roost all night. At any other time of the year this would excite but little surprise, but in the breeding season such proceedings are certainly rather unaccountable. At daylight this company of gourmands may again be seen hard at work upon the whales, and throughout the day many more ravens, probably those which have young ones to feed, are constantly adding to the crowd, most of them remaining only for a short time, but carrying away quantities of the flesh. The number of crows undergoes but a slight increase. Although the breeze coming up from the beach now carries with it rather more of a Thames flavour than is agreeable, it nevertheless also conveys the assurance that as long as the annoyance continues, young lambs and weakly foals will have less to dread from their merciless foes, the ravens.

Lesser Blackbacked Gull.—Most of our summer visitors have now arrived. Lesser blackbacked gulls appeared on the 8th of April (wind S.E.), and are now revisiting their nesting-places, where there are already many nearly-completed nests of the herring gull.

Wheatear.—On the 14th of April a stiff breeze from S.E. brought the first few wheatears, and the song of these welcome birds has since been almost constantly heard. The greater number appear first upon the hills, but they very soon descend to the low grounds, preferring such as are stony and irregular, and intersected by those loosely built stone walls in which they so love to conceal their nests. Comparatively few wheatears breed among the hills.

Arctic Tern.—The first arctic tern was seen on the 23rd of April (wind S.S.E.), but that was early, and there are very few here yet.

Redwing.—The only other arrival that I observed was that of a small party of redwings, which appeared, with a S.W. wind, on the morning of the 13th of April. They left during the following night.

Blackheaded Gull.—Blackheaded gulls remain with us all the year: they are now in full plumage, and pairs are to be met with upon most of the small lochs near the sea.

Whitetailed Eagle.—Whitetailed eagles are sitting. The nest in Yell contained the first egg on the 20th of April. A pair of these birds visited the island of Balta three days ago, and committed some havoc among the lambs. Their foot-prints were very distinct in the sand upon which a partly-devoured ewe was lying.

Longtailed Duck.—A considerable number of longtailed ducks (*Anas glacialis*) still remain, although many pairs were flying northwards on the 22nd of April. I have seen a few as late as the last week of May, but they were, without exception, immature birds. The old ones nearly all pair before leaving, but young ones continue in flocks or small parties as long as they remain here. The cry is still constantly to be heard, particularly in fine clear weather, when it is easily distinguishable at the distance of a mile or more; even upon a fine moonlight night, whether the birds are flying overhead or sitting quietly upon the water, whole flocks may be heard uttering their well-known "cal-calloo," both old and young joining in chorus, in which the more clear and musical tones of the former are distinctly to be recognized. Every listener has some pleasing association connected with the cry, and to me it irresistibly calls to mind the voice of a child who is still too young to speak. Authors seem to have come to the conclusion that both sexes have the same note, yet it is curious that, although I have for many years been constant in my endeavours to settle the question to my own satisfaction, I have never yet heard the female utter a sound of any kind. In the winter of 1862-3, this species was very scarce at Baltasound; the inhabitants accounted for this by the fact that during that season the unusual abundance of small fish attracted large flocks of shags, whose presence alarmed the longtailed ducks: the latter most certainly dislike the company of other species.

Lapwing.—Lapwings were making their nests early in April, but the first eggs that I heard of were found on the 12th. I have some curious specimens in my collection; some of a pale reddish stone-colour, with faint bluish gray marks, and one of a very pale cream-colour, with a well-marked zone of small black dots.

Ringed Plover.—The first ringed plover's eggs were found on the 26th of April, but most of the birds had paired and returned to their breeding-places some weeks previously. I have seen fresh eggs as late as the first week of July. The favourite breeding-ground in this neighbourhood is situated about half-a-mile inland, at the foot of a range of steep hills, and with a large extent of cultivated land lying between it and the sea. The nests are invariably found in the bare gravelly patches which so frequently occur among the stunted grass and heather, a preference being shown to the vicinity of water, even though the quantity be barely sufficient to glisten in the sunshine. A perfect nest consists of a saucer-shaped hollow scraped in the ground and lined with small stones, which are sometimes so thickly piled around the sides that the eggs are found standing almost perpendicularly upon their small ends. Like the oystercatcher, the ringed plover will frequently make more nests than it requires for use, and three or four may sometimes be found within a few yards of a sitting bird. Occasionally the presence of a large stone or a root at the bottom of one of these hollows shows sufficient cause for abandonment, but it often happens that these extra nests are carefully lined and finished. The cavity of a perfect nest measures from four inches and a half to five inches across, according to its depth, the deepest being, of course, also the widest. The most remarkable variety of the egg that I have seen is of a yellowish colour, with a few large blotches of dark brown, and is so similar in appearance to the second figure of the quail's egg in the second edition of Mr. Hewitson's work on the 'Eggs of British Birds,' that almost every person to whom I have shown it has been struck by the resemblance. The only other egg which the nest contained was of the ordinary form and colour.

House Sparrow.—House sparrows returned to their nesting-places about the 10th of April: their attention is now about equally divided between nest-building and the destruction of young gooseberries. For the last six years a pair of sparrows has bred regularly in one particular crevice in a cottage-wall; the plumage of the female is remarkably pale and faded in appearance, but this peculiarity seems not to be transmitted to any of the young birds.

Osprey.—On the 28th of April I saw an osprey standing upon a small hillock, devouring something, probably a fish, which it held down with its feet. I tried to get within shot, and should have succeeded if an impudent hooded crow had not scared it by endeavouring to snatch a share of the meal. The osprey frequently removed to the distance of about a hundred yards, carrying its food in its claws, and at length when the last morsel was finished, away sailed the graceful bird, wheeling in circles and gradually ascending to a great height, and all this with scarcely a perceptible movement of the wings.

Kittiwake and Guillemot.—Kittiwakes and guillemots returned to Burrafirth, their main breeding station, about Candlemas, keeping almost entirely to the water for several weeks, and then taking up their quarters in the cliffs. The kittiwakes are unusually numerous this season. A few small flocks remain with us all through the winter. The young birds do not breed during their first year, and are known in Unst as "yield kittiwakes."

Kestrel.—On the 13th of April hoopers were last seen, and on the 15th I observed several kestrels. A few pairs of the latter breed in the sea-cliffs, and there is reason to believe that, with very few exceptions, both old and young leave us in winter.

Cormorant and Shag.—Cormorants returned to their breeding-places a few days ago, but shags were already building at that time.

Redbreasted Merganser.—Redbreasted mergansers are still in flocks; this is nothing unusual, for they are late breeders.

Water Rail.—No water rails are now to be seen.

Snow Bunting.—Snow buntings are returning northwards. At this season large flocks come from the south, and after resting for a few days continue their journey, taking with them the few which have remained with us all the winter.

Starling.—Although there are still some small flocks of starlings about, many pairs are busy with their nests. Last year there was quite a colony of these birds among some large stones upon the shore, a few yards above high-water mark: the nests were easily discovered, but most of them were far beyond arm's reach.

Hooded Crow.—The hooded crow is a late breeder, that is, late compared with the raven, the only other species of crow indigenous to these islands. It paired early in the month, but no nests have yet been found. Although the raven displays such cunning in the selection of a site for its nest, the hooded crow, on the contrary, seems to take no small pains so to place its nest that it shall be easily accessible to man. I am by no means a good climber, and yet I never saw more than one of these nests which was beyond my reach. In this island, where we have no *tree* larger than rhubarb, except in Dr. Edmondston's garden, sticks and even twigs are scarce, therefore birds are compelled to select such materials as the climate affords for nest-building purposes. Mr. Hewitson has long since recorded the fact of Shetland eagles and crows substituting sea-weed for sticks. The most singular looking nest which has yet come under my notice was that of a hooded crow. The upper part was, as usual, composed of large sea-weed stalks, lined with wool, feathers, hair and moss, but this was placed upon a substantial foundation of the bones of ponies and sheep, collected in such quantity that the mass measured nearly a yard across, and, in one part, a foot in depth; many of the bones were of so large a size that it was difficult to imagine how they had been conveyed by the birds. But the peculiarity did not end here. In my walks along shore I had at various times collected a number of quills of geese and great blackbacked gulls, depositing them for safety in a crevice of a rock; but the hoard having been discovered by the crows, it was unceremoniously appropriated by them, and long afterwards the quills were to be seen sticking like so many skewers around the brim of the nest, crossed and interwoven in a manner well calculated to afford great strength, although they certainly caused a very odd appearance. I know of one other instance in which bones entered into the composition of the nest, but they were only used in very small quantity.

Purple Sandpiper.—Purple sandpipers are still to be met with in considerable numbers, not only upon the rocks by the sea-side, but also in moist spots upon the tops of hills several hundred feet above the level of the sea. They are found in the latter situation chiefly in spring and autumn, probably because at those seasons food is more abundant inland. Returning homewards rather late one evening, across a piece of wet gravelly ground, I heard a low grating noise, and after some little search discovered that it proceeded from a purple sandpiper, which was standing near with its bill partly open, and apparently making great efforts to swallow something. I then shot the bird, and found in its mouth a small roundish stone, partly covered with a minute vegetable substance, which also grew in great abundance upon every stone beneath the slowly trickling water. A large quantity of the same substance was present in the stomach and œsophagus, and more of it was thickly entangled in the double row of papillæ upon the palate. I afterwards shot two more of the same species, which were similarly engaged. This certainly looks very much as if the papillæ, assisted by those at the base of the tongue, acted together as a kind of rasp. The familiarity of these birds often enables me to approach them within the distance of a few feet, and sometimes in the dusk of the evening I have succeeded in creeping up even closer than usual; at such times I have heard another very peculiar sound, resembling the loud, regular ticking of a watch. At first it seemed likely that it proceeded from the bursting of a succession of air-bubbles as they ascended from the hidden inhabitant of one of the pools of water near at hand, but afterwards, hearing it when the bird was standing upon a piece of dry ground, some distance inland, my opinion was altered. The purple sandpiper is an excellent swimmer. I once saw one upon some stones near the edge of the Loch of Cliff, and upon my approach it flew for several yards, and then quietly alighted in deep water. Upon another occasion I saw one of a small party wade into a deep pool of salt water, and deliberately swim across to the opposite side, a distance of about five feet. Occasionally when sailing close inshore I have come suddenly upon a small flock, several individuals of which were swimming actively about the base of the rock upon which their companions were busily searching for food. I never saw one dive except when it was wounded. Purple sandpipers seldom appear here in anything like a large flock, but are usually found in small parties of perhaps a dozen or thereabouts, either by themselves or in company with other birds of similar habits, such as turnstones, ringed plovers, dunlins or oystercatchers. In fine weather they mostly frequent such rocks as can supply them with small shell-fish. They are less active at high water, when their feeding-places are covered, and at that time they loiter about the rocks, as though waiting for the tide to fall. Their habit of keeping to the seaward side of the rocks often renders it difficult for a person upon the land to discover them. This species shows such little fear of man, that it is usually difficult to alarm them, provokingly so sometimes when one wishes to obtain a shot, and the bird, refusing to rise, stands quietly with its head on one side, as though it were highly amused at such an amount of "clucking" and gesticulation on the part of the would-be-murderer. As to the question of this species breeding here, I have yet some remarks to make, but must beg to reserve them until the approaching summer affords further opportunities for investigation.

HENRY L. SAXBY.

Baltasound, Shetland, April 30, 1864.

Lepidogaster bimaculatus in an Aquarium.

By W. R. HUGHES, Esq., F.L.S.

THIS beautiful little creature, which is one of the smallest and most interesting of British fishes, offers many important points of attraction both to the zoologist and the marine naturalist. As a tenant of the tank it is unrivalled, especially to those who give the preference to animals of a roving rather than a sedentary habit, such as the anemones, corals and higher forms of radiate life. Its symmetrical form, its lively colour, its peculiar motion, and the readiness with which it accommodates itself to its new home, specially commend it to the attention of the aquarian naturalist. Our present efficient state of the aquarium is certainly matter for gratulation, when we read the following quaint passage in 'Yarrell.' "Colonel Montagu obtained the Lepidogaster bimaculatus, by deep dredging, at Torcross, adhering to stones and old shells, and kept some specimens alive for a day or two in a glass of sea-water!" Perhaps, as I am quoting from that eminent ichthyologist it may be as well to state that he classes the sucking fishes under the Cyclopteridæ, or third family of the sub-brachial Malacopterygii, assigning as the characteristics of the genus that "the body is smooth, without scales; dorsal and anal fins opposite and near the tail; pectoral fins large, descending to the inferior surface of the body, and, by an extension of the membrane, surrounding an oval disk; ventral fins united by a membrane, which extends circularly under the belly, forming a second concave disk."

The external appearance of the little sucking fish is, as Mr. Gosse remarks, somewhat tadpole-shaped, but a tadpole conveys but a faint idea of the graceful body of my pet. It does not exceed two inches in length; the colour is a delicate pink, slightly speckled; but this is subject to great change, dependent, perhaps, on the passions of the fish; occasionally it may appear yellowish white, while at other times it assumes a rich carnation hue. The specific title owes its origin to two oval spots of a dark purplish colour on the ventral sides of the fish, and which, at first sight, might lead the observer to imagine that the little fellow had received an injury. No words can describe the singular beauty of its eyes; they are perfectly gemmeous, and appear like living opals set in burnished gold. Every visitor who for the first time sees the little sucking fish is sure to be attracted by these remarkable organs, and viewed through a good lens they are indeed a pretty object. Unquestionably they are the most beautiful feature of this beautiful little animal. They have the remarkable power which some other fishes and a few of the reptiles possess, *viz.*, that of separate vision; one eye, perhaps, looking directly in front, while the other is directed to the tail, or it may be stationary, or rolling round in the most grotesque manner. By and bye the motions may be reversed, or they may act in unison. This may be explained by the fact that the optic nerve simply crosses, without any commissural communication, as is the case with man and the higher animals. The eyes being on opposite sides of the body, each eye only receives impressions of objects situated on its own side; its nerve fibres therefore pass directly across to the opposite side of the brain, without receiving, as it otherwise would, the nerve fibres originating from that side of the opposite eye.

Another curious feature of the genus is the singular power of attaching themselves and firmly adhering to stones and old shells. The inner surface appears usually to be the part selected, and in the neighbourhood of the hinge they lie coiled up safely at anchor at the bottom of the sea. This power of adhesion continues so pertinaciously that they are easily secured by the dredge, through the meshes of which it would otherwise be perfectly possible for them to escape. In the living state they are exceedingly difficult to detach, without danger of injury, from any substance to which they adhere, and after death the power of attachment continues for a short time.

My first personal introduction to the species was in the month of July last, in the study of Mr. Gosse, at Torquay, who had several specimens in a large shallow pan, some three or four inches deep. There were no other animals in this aquarium, and the stones and shells in it were profusely covered with rich confervoid growth. The sight of my friend's pets fired my enthusiasm, and, in company with my brother-in-law, we dredged most industriously, sometimes for a whole day, but without success. In vain did our guide and factotum of the genus "salt" endeavour to appease our anxiety by promising that he would take us to a place "where we could ketch three hundred o' them 'ere fish." Why he fixed this modestly definite number I cannot presume to say. His promises were as pie-crusts—made to be broken. So at length we changed our *cicerone*, and presently our patience was rewarded, but not until very many heavings of the dredge had been overhauled. Only seven specimens were eventually taken, and these were secured in the vicinity of the Ore Stone, one of the most celebrated dredging grounds in the district. I am therefore disposed to think that, in the neighbourhood of Torbay at least, the little sucking fish is somewhat of a *rara avis*. Of these, although the greatest attention was paid to them in the extempore aquarium—usually a pie dish—which one is compelled to make shift with at a watering place, only five reached the Midland Metropolis, and these were carried the greater part of the journey in my hand in a gallipot, with a bit of muslin for a cover. Occasionally fresh sea water was added, as the motion of the train caused waste, or as the temperature became affected by the heat of a July sun. At home I experienced further losses: two were mercilessly mauled by a voracious "daisy" anemone, and the third died of causes unknown,—at least, the *post mortem* disclosed no more satisfactory evidence than that my pet had expired from the effects of a surfeit. I shrewdly suspect that a kind though injudicious friend over fed it with bread. The remaining two survived partly through the winter. To these I am indebted for the observations recorded in this paper. One was an adult, the other about two-thirds grown.

In a very few days after I brought them home they became perfectly domiciliated. I placed them in a large glass pan, about seven inches high, with a sandy bottom extending to about half the depth, in which were several untenanted bivalve shells—as Cardium and Pecten for instance—some placed with the concave side upwards, some *vice versâ*, and some arranged at an angle on bits of stone, so as to form a sort of cave. They speedily attached themselves to these by means of their suckers, sometimes remaining for days in one shell without leaving it, but they would frequently turn round in the shell, with a smooth, gliding motion, as the sucker passed over its surface. This was particularly noticeable when anyone went to the aquarium in which they were imprisoned; the caudal portion of the body assuming a curved shape, and gently undulating in the most graceful manner, the tail itself frequently moving, and the pectoral fins never seeming at rest.

Mr. Gosse, with his wonderfully accurate observation, beautifully describes this phenomenon at page 110 of the second edition of his 'Aquarium.'

"When put into a vessel of water (no easy matter without injuring it, as it adheres so firmly to its hold), it immediately clings to the side of its new habitation or to the first solid substance with which it comes into contact. Here it will probably remain for a considerable time unmoved, or now and then shift its position a few inches, or take a wayward start, and wriggle along with an awkward sort of agility to some other part of the aquarium, to which it sticks fast in a moment, as before. During the night it is much more restless, but, so far as I am aware, it has no power of hovering in the water, or swimming deliberately to and fro, as other fishes do, its locomotive powers consisting only of the ability to shift from one stationary position to another.

"As it thus has no power of pursuing prey I conjecture that its subsistence is derived from those microscopic organisms which are scattered abundantly through the water, and which furnish support to multitudes of other creatures more strictly immoveable. In the case of these, which are for the most part invertebrate, strongly ciliated surfaces are provided, which produce constant and forcible currents, and thus the floating atoms in the surrounding fluid are carried along to the orifice of the digestive canal. Our little sucking fish has no external apparatus of cilia that I am cognisant of, but a similar effect is produced in another way. I have noticed that while this little fish remains stationary, being fast moored by its breast anchor, it maintains a constant and regular fanning with its filmy pectoral fins. This habit seemed to me at first useless and unaccountable, but, on consideration, I have little doubt that its purpose is to produce a more free and rapid change of the surrounding water, and that it is one of those compensatory actions that we frequently meet with in physiology, and that are so interesting."

It is worthy of notice that each of my pets usually retained his own particular shell, and if he occasionally took a gliding turn round the sides of the aquarium, he generally came back to his old home. But their rambles were of unfrequent occurrence, and their locomotion evidently a matter of labour. The reason of this is patent: the Lepidogaster bimaculatus has no swimming bladder, consequently he swims about, with apparent difficulty, by means of his fins and tail. When tired or disposed to return to his habitation, he ceases all motion, and drops to the bottom by his own specific gravity. I have said that my favourites soon became domiciliated. I think that at the end of a fortnight they knew me so well that they would follow me with their beautiful little eyes to whichever side of the aquarium I happened to stand, and sometimes they would leave their shells and come over and adhere to the side of the glass, pouting their little mouths even out of the water for a portion of food.

My wife agreed with me in opinion, that for some weeks at least there existed a personal attachment between me and my little friends, for they rarely came up to anyone else. It may be accounted for by the circumstance that I always fed them myself.

They subsequently got tamer, and always rose to the surface, if they happened to be hungry, whenever anyone went to the aquarium. This habit nearly lost them their lives on more than one occasion. A favourite cat of ours was often in the habit, when no one was in the room, of sitting and watching for them to rise to the surface; but I cured her of her propensity for live fishing by summarily dipping her head in the sea-water, to her great disgust, when she attempted to "wash her face," as is the custom with cats.

They were fed once or twice a week with one or two small portions of mussel, oyster or raw fish, about the size of half a pea, and the diet was generally varied. They took their food in the most peculiar snatching manner,—as quickly as the chameleon catches an insect,—darting at it, and, if they missed their mark, returning again and again, until they succeeded.

In the same aquarium were a few specimens of the British corals C. Smithii and B. regia, and it was remarkable that on feeding days, when the corals happened to be first served, on account of my pets being out of sight, their instinct soon taught them to understand that their turn was coming, and they immediately appeared all expectancy, "wagging their tails" for a morsel. I am informed that they are mischievous little fellows if there happen to be Serpulæ or other tube worms in the aquarium, bobbing at their branchiæ with indefatigable perseverance, but they are generally careful to keep out of the way of the Actiniæ.

To any of the readers of the 'Zoologist' who are aquarian naturalists, and who may be fortunate enough to secure specimens of the Lepidogaster, I most certainly recommend that they follow Mr. Gosse's plan, and keep a separate aquarium for them. The rapacious blennies and gobies are of course always on the alert for them, the inquisitive crustaceans are always poking at them, and (if they come in their way) the omnivorous anemones are ever ready to engulph them.

The water of my aquarium was changed sometimes—not of necessity, but because I happened to have some fresh sea-water in stock, and the little fellows appeared to appreciate a change now and then. It was never syringed, but the surface occasionally agitated by means of a stick, in order to prevent a film of dust accumulating.

At page 181 of his 'Tenby,' Mr. Gosse gives some very interesting particulars respecting the reproduction of the Lepidogaster. He says: "It is the habit of this tiny fish to lay its eggs in the interior of old shells of bivalves that lie on the bottom; and it would appear that it is one of those species which exercise a parental care over their offspring, watching the eggs until the young are hatched. We can scarcely call it incubation; but the little animal coils itself up among its spawn, adhering by the sucking disk of its belly to the interior of the shell, and continuing there with remarkable pertinacity. I have kept my specimen now for seven days, during the whole of which time I do not believe it has left the old cockle shell even for a moment, night or day, though it frequently shifts its position a little, now and then shuffling half round. Yet its quarters seem none of the most comfortable, since it finds room to sit only by coiling its tail on either side by its body.

"The embryos have continued to be matured from day to day. On the first introduction of the nest from the depths of the sea to the light and warmth of a vase in my window, they came out numerously and rapidly, but after the first day the births were much less frequent. Now, however, on the seventh day of captivity, there is again an impulse to the process, and the remaining eggs are hatching fast.

"The eggs are interesting objects beneath a lens. At first it seems as if each contained only two black specks in a globule of pellucid greenish jelly; but, on closer attention, we perceive through the perfectly transparent egg-shell the form of the little embryo fish. It is coiled up in a circle, the centre of which is occupied by the head, and this, which is by far the largest portion of the animal, consists almost entirely of the two staring eyes. As soon as the young escapes, it swims along by a wriggling motion, usually seeking the surface of the water and that side of the glass which is next the light."

Alas! I never had an opportunity of observing the development of the young of the sucking fish, for my two remaining specimens succumbed under the influence of the cold, frosty nights in January. One morning, on going to the aquarium, I found them both rigid and nearly dead, although placed in the warmest room in the house. The temperature of the water was about 36°. I tried removal to a smaller vessel, full of fresh sea-water, in a position nearer to the fire, but this failed to revive them. Vertebrate life, as a rule, cannot sustain the extremes of temperature to the extent that invertebrate life can, for no other animals in my aquaria died during the winter. Several, however, seemed much pinched with the cold, but the warmth of a sunny day or two soon brought them round again. Once Peachia hastata came out of his burrow, but returned after a few hours.

My friend Mr. Bracey, our house surgeon, and I dissected one of the sucking fishes, and the following are the notes made on the occasion.

The most remarkable part of its anatomy was the sucker. This formed a disk, composed of the union of the pectoral and ventral fins, situated on the under surface of the body near the gills. The disk was composed of two cartilaginous plates, nearly circular in form, placed one in front of the other and a little inclined towards each other. The anterior one was rather the larger, and had connected with its sides a kind of fringe, formed of a similar material, folded into a series of rays. The posterior plate had a smaller fringe, so placed as to form a continuation of the first; thus the edges of the disk were capable of adaptation to any irregular surface, and would remain in contact with it when the plates were elevated, as the disk became concave. This movement of the disk, upon which its action as a sucker depended, was effected by muscles attached to the edges of the plates where they were in contact with one another, and springing from part of the vertebral chain. These muscles were very distinct, and appeared to be largely developed. The two spots on the surface next attracted attention, and here a large deposit of pigment was found in the tegumentary structure. The alimentary organs could not well be made out, owing to the decomposition, but the intestinal canal appeared to be very simple. The mouth was large, and furnished with teeth.

W. R. HUGHES.

The General Hospital, Birmingham,
May 16, 1864.

On the Abundance of Spring Wasps.—From various parts of the country I have received accounts of the unusual abundance of wasps this spring. Appended to this information are various opinions: one correspondent congratulates me with the assurance that I shall have no reason to complain of the scarcity of wasps this year; another friend tells me that fruit-growers and others have paid boys a penny, and, in some cases, twopence, a dozen for collecting these spring wasps. On turning back to the seventh volume of this great magazine of zoological facts (Zool. 2614), I find a very excellent communication upon the "Seasonable Abundance or Scarcity of the Common Wasp," by the Rev. W. T. Bree, whose experience on the numbers of spring wasps is summed up in these words:—"An abundant flight of spring wasps is no sure earnest of a correspondent summer flight, but rather the contrary. I mean that if wasps are abundant in the spring they are scarce in the summer, and, *vice versâ*, if they are scarce in the spring they are abundant in the summer." The communication concludes with a hope that some reader will, if possible, throw a light upon the "above fact." At Zool. 2678 I have endeavoured to account for the circumstances narrated by Mr. Bree. In order to support Mr. Bree's conclusions, wasps should be comparatively scarce during the coming summer and autumn, and such I am inclined to expect will prove to be the case, for reasons which I will proceed to detail. All those who, like myself, take annual holidays in autumn will remember the wet, soaking wet, autumn of last year. I spent a week in Dorsetshire, visiting Pool and Swanage: to say that it rained every day would scarcely convey a correct idea of the weather I experienced; it, in fact, rained every night also, more or less. I was told by the residents that it was the wettest season that had occurred in that part of the country for many years. During the few brief intervals of sunshine that occurred, I rambled over Purbeck Hills, which are strewed over with slabs of the Purbeck stone; under these, when in search of Coleoptera, I found considerable numbers of female wasps; all were in a semi-torpid state, having apparently taken refuge for the purpose of hybernation. The pairing season had been most unpropitious to the Vespidæ, and I am inclined to believe that when this is the case a large majority of the females never copulate with the other sex; and if this be a fact we can readily understand that, in cold, ungenial seasons, the females will retire to their hybernaculi at a much earlier period than in fine warm sunny autumnal weather. Bearing these considerations in mind, I look forward to the coming autumn with a degree of curiosity, anxious to ascertain by facts in how great or less a degree they will accord with results which are anticipated in the above remarks, because I think we may fairly conclude that, if the majority of spring wasps deposit unfertilized eggs, we cannot look forward to the appearance of large swarms of wasps in the autumn.—*Frederick Smith.*

Proceedings of Societies.

ENTOMOLOGICAL SOCIETY.

June 6, 1864.—H. T. STAINTON, Esq., V.P., in the chair.

Donations to the Library.

The following donations were announced, and thanks voted to the donors:—'The Journal of the Royal Agricultural Society of England,' Vol. xxv. Part 1; presented by the Society. 'Verhandlungen der Kaiserlich-Königlichen Zoologisch-botanischen Gesellschaft in Wien,' Band xiii.; by the Society. 'Monographie der Oestriden,' von Friedrich Brauer; by the Author. 'The Transactions of the Entomological Society of New South Wales,' Vol. i. Part 2; by the Society. 'Histoire Naturelle des Araignées (Aranéides)' par Eugène Simon; by the Author. 'Sitzungsberichte der Naturwissenschaftlichen Gesellschaft Isis zu Dresden,' Jahrgang, 1863; by Herr L. W. Schaufuss. 'The Zoologist' for June; by the Editor. 'The Intellectual Observer,' Nos. xxviii. and xxix.; by the Publishers. 'The Journal of the Society of Arts' for May; by the Society. 'The Athenæum' for April and May; by the Editor. 'The Reader' for April; by the Editor. 'The Entomologist's Monthly

Magazine,' No. 1; by the Editors. 'The Entomologist,' Vol. ii. Nos. 1 and 2; by the Editor.

Election of Member.

Edward Revett Sheppard, Esq., of Rutland Lodge, Lee Park, Lee, was ballotted for and elected a Member of the Society.

Exhibitions, &c.

The Secretary exhibited some leaves of the sugar-cane from Mauritius, with numerous specimens upon them of an insect (a species of Coccus) which had lately committed great ravages among the plantations of that colony: they had been sent to him by Mr. James Morris, the representative in this country of the Mauritian Chamber of Agriculture. Mr. Morris (who was present as a visitor) said that the insects had attacked the young leaves as soon as they came out, both in Mauritius and Réunion; they had never been noticed before, and were supposed to have been introduced into the islands from France or Belgium. The sugar-growers were very anxious to hear of some remedy; the employment of children to pick the insects off and destroy them had been suggested, and the use of sulphur, which had been successfully applied for the vine-disease, had also been recommended. They had formerly suffered considerably in Mauritius from the borer insect (*Diatura Sacchari*), and in some quarters the injury was still continued; but at his (Mr. Morris's) suggestion, some of the planters dipped the heads of the canes, before planting, in a weak solution of carbolic acid very much diluted in water, and it was found that the canes grew vigorously and were not attacked by the borer.

Prof. Westwood remarked that the use of sulphur for the vine-disease had certainly produced a most beneficial result; the application of carbolic acid, which had proved successful with the borer, ought to be tried as a preventative of the attacks of the Coccus; the young plants might be washed with the solution, but to get rid of the insects when once they had settled upon the plants he apprehended that a manual application would be required.

Mr. Bates asked whether there was any destroyer of Cocci which could be readily imported. It would be difficult to organize an immigration of Coccophagi (Chalcididæ).

Mr. F. Smith exhibited some singularly elaborate and beautifully coloured drawings of Lepidoptera belonging to Mr. W. S. Atkinson, of Calcutta, and executed by Indian artists; among them were the sexes of Epicopeia Polydora, exhibiting peculiar variation in the form of the hind wings, and the rare Calinaga Buddha, *Moore*.

Mr. F. Smith also exhibited a British female specimen of a Bombus which was unknown to him; it was captured by his son on Deal Sands; the head resembled that of B. hortorum, whilst the rest of the insect was like B. Lapponicus; he had as yet been unable to determine the species.

Mr. F. Smith also exhibited a series of six wasps' nests of most singular construction, belonging to Mr. Stone, of Brighthampton; each was built in a cubical wooden box, and all were of different and fantastic shapes, one being an imitation of a stalactite cave, whilst another not inaptly represented Stonehenge. The whole of the series had been executed by the same colony of Vespa germanica, without a queen, in thirty-eight days of September and October, 1862; No. 1 of the series was completed in two days, No. 2 in four days, No. 3 in seven days, No. 4 in fifteen days, No. 5 in five days, and No. 6 in five days. He had only that day received the nests, with a letter from Mr. Stone, of which the following was an extract:—"Of these nests I may remark that the extraordinary thing is that one set of wasps should have executed the entire series, and also the very short space of time in which some of the specimens were completed. The fifth and sixth of the series are certainly very extraordinary productions. In the roof of these examples the arrangement of the cones is beautifully shown." Mr. Smith hoped before the next Meeting to obtain information from Mr. Stone as to the means employed to compel or induce the wasps to make these abnormal constructions.

Mr. F. Smith read the following further extract from Mr. Stone's letter:—

"The present season bids fair to be a more favourable one for our favourite Order than any one since the disastrous year 1860. I think I never saw the commoner species of Bombi so plentiful. Wasps, too, are in great force, and they commenced their labours at an earlier period than I ever knew them do before. I took out of a chamber I had formed the year before, and attached to a peg I had then inserted, a small nest of Vespa germanica so early as the 23rd of April last, and up to the present time I have removed from chambers I formed this spring fifteen nests of various species and of various sizes. I have one of V. germanica at work in a window of the house: from this nest I am in daily expectation of seeing young wasps emerge.

"Two years ago I brought home two nests of V. sylvestris, which produced a vast number of young females in the autumn of that year. Last year none of the females of this species were observed here, but this year they abound. This goes to confirm the opinion you have expressed, and in which I agree, that female wasps occasionally remain more than one winter in a torpid state, after leaving the nest in which they were bred."

The Secretary read the following, which had been communicated by a gentleman residing near Chichester:—

"If you have no statistics of the occasional visitations of wasps in unusual numbers, perhaps the following notes may interest the enquirers into such matters. I have been a wasp-destroyer for many years, and to that end have paid for all queen wasps taken in the months of April and May, and destroy all nests found during the year. The queens appear when the gooseberry blooms and the hawthorn hedges begin to be green. In some years large numbers have been obtained, and, if my accounts are at all a true test, there have been very few queens in some seasons, and in others not enough to repay an idle boy for the trouble of collecting them. As the breed of wasps is said to be dependent in some measure on the weather in the previous autumn and winter, I have appended a few weather remarks in connection with the wasp reports.

1836. Previous autumn wet, early spring wet, yet 123 dozens of queens were collected.

1837 and 1838. Scarcely any wasps, only 3 dozens of queens in 1838.

1839. Much wet in the previous autumn, but spring rather dry: 287 dozens of queens.

1840. Much wet in the previous autumn, the spring rather dry: 73 dozens of queens.

1841. Cold and severe January, and about an average quantity of rain in the spring, but queen wasps abounded to a very great extent: 586 dozens of queens collected. No account of nests afterwards.

"No report of wasps taken for some years, but it is supposed that they were scarce here, or the boys would have been anxious to earn their pence.

1852 and 1853. Very wet, consequently against the breed of such insects. No queens paid for.

1854. The four months, July to October, in 1853, very wet, but the spring of 1854 dry. No queens recorded as paid for, but the nests of wasps were very early, very strong and remarkably abundant: nearly 100 nests were destroyed within a few hundred yards of the homestead. The year 1854 was one of the driest on record, and it was also remarkable for the almost total destruction of hops by blight. Were the wasps sent to destroy or stay that evil? They are great enemies to all insect life. In this year I was attracted by the wasps collecting on the stems of some stunted silver-firs where the bark had been rubbed off in former years: on examination I observed that these spots were inhabited by some specimens of the Aphis tribe, large and rather light coloured: they exuded very large drops of their fæces, and this was the attraction to the wasps, who became gorged or drunk with it, so as to prevent them from getting out of the way of the foot which crushed a dozen at once. What species of Aphis was it likely to be?

1855. The spring of this year also very dry, but no wasps are recorded as paid for.

The years 1856 and 1857 were moderate as to rain, and 1858 was a very dry year. In 1857 there were 144 dozens of queens and in 1858 94 dozens paid for.

No record of 1859, but 1860 was a year of wet and gloom: no queens and no nests.

In 1861 no queens collected, and only 21 dozens in 1862.

In 1863 no queens collected and very few nests to be found; there were some very strong nests, but all known ones were destroyed.

Yet now, on the 20th of May, there have been brought in above 250 dozens. Where do they come from after such a season of their scarcity as 1863?

"My house is not very far distant from long tracts of wood, on the edge of the southern slopes of the South Downs."—W. L. W.

Mr. F. Smith enquired what was the object of destroying all the queens? Surely such immense visitations of wasps did not occur without there being some important function which the insects were sent to perform.

Mr. Tegetmeier mentioned a novel instance of intelligence and prevision in the honey-bee. When a tenantless hive with empty combs is left in an accessible situation, it frequently happens that bees will visit it and clear out the refuse, and that a swarm will then take possession of it; but it has not been previously recorded that the bees will secrete wax in a tenantless hive for the purpose of repairing the injured combs and of fastening them more securely to the roof and sides. Being desirous of stocking a moveable frame hive with a swarm that was expected to come off early in May, Mr. Tegetmeier secured an empty comb in each frame and placed the hive alongside the stock from which the swarm was expected to issue. The bees from that stock immediately visited the empty hive, and carried out fragments of loose comb; on raising the hive after it had been thus visited for a few days, he observed newly-secreted scales of wax on the floor-board; and on careful examination he found that a considerable quantity of new white wax had been secreted, and used for the purpose of securely attaching the combs to the wooden frames. The difference between new and old wax was so great as to preclude the possibility of one being mistaken for the other; and hence Mr. Tegetmeier could only conclude that the bees, with the intention of taking possession of the empty hive, had assembled in it in considerable numbers and clustered together to secrete wax, which they had then employed to strengthen the attachments of the combs, so as to enable them to bear the weight of the honey, bee-bread and brood, with which the cells would be filled shortly after a swarm should take possession of the hive.

Mr. Tegetmeier also said that about two years ago he had brought under the notice of the Society the fact that bees in the perfect state were in the habit of eating pollen or bee-bread, which was previously supposed to be collected solely as food for the larvæ; during the present year he had obtained indubitable proof of the consumption of pollen by the bees themselves, having captured several in the very act of eating it on the alighting-boards or entrances to the hives. Microscopical examination showed that in each instance the stomach was filled with pollen-grains; and Mr. Tegetmeier thought there was no good ground for suspecting that the pollen thus eaten was afterwards disgorged with the honey in the stomach as food for the larvæ.

Mr. M'Lachlan exhibited a case-bearing larva which had been found by Mr. Douglas at Box Hill, apparently feeding on wild thyme. Prof. Westwood was of opinion that it was a larva of the Coleopterous genus Clythra.

Mr. Bates read the following extract from a letter recently received by him from Mr. Roland Trimen, of Cape Town:—

> "I have just noticed a very remarkable instance of close imitation of a flower by a spider. Leptoneura Clytus, a handsome Satyrus, is very abundant here just now. Flowers are rather scarce at this season, and a tall straggling plant with yellow composite flowers attracts these butterflies, with many other insects. As I approached a plant upon which were several Clytus, I observed that two specimens did not fly off with the others, and found that each was in the clutches of a bright yellow spider. I removed one of these butterflies, and as the spider shrunk up its limbs on the flower, which it equals in size, it was scarcely distinguishable, so exactly similar was it in colour. But it was after this that it assumed its astonishing likeness to the flower. Recovering from its alarm (I suppose), it slowly moved to the side of the flower, and, holding on to the stalk by its two hindmost pairs of legs, extended the two front pairs upwards and laterally. In this position it was scarcely possible to believe that it was not a flower seen in profile, the rounded abdomen representing the central mass of florets, and the extended legs the ray-florets, while, to complete the illusion, the front femora, appressed to the thorax, have each a longitudinal red stripe which represents the ferruginous stripe on the sepals of the flower! As the other spider also assumed the same attitude when robbed of his butterfly, and as both retained it for a considerable time (I left them so), I conclude that it is their ordinary mode of waiting for their prey. I enclose the flower, and shall be glad to hear its name."

Mr. Bates added that the flower was the Senecio pubigerus of Linneus, a very common road-side weed in dry ground, &c., about Cape Town, and the spider belonged to the genus Salticus; he considered this case of mimetic resemblance peculiarly valuable, since the purpose or object of the imitation was so plainly manifest.

Major Parry sent for exhibition a male specimen (*var.* minor) of Odontolabis

Stevensii, the left antenna of which was trifid from the third joint, having three distinct clavæ, whilst the right antenna was bifid from the extremity of the basal joint; one of the latter limbs appeared to have been fractured, and in consequence the right antenna did not exhibit two perfect clavæ. Major Parry communicated the following note:—

"I beg to submit to the Meeting a brief account of an extraordinary and interesting case of monstrosity produced in the antennæ of Odontolabis Stevensii. one of the Lucanoid Coleoptera, the right antenna being furcate from the apex of the basal joint, whilst the left one exhibits a bifurcate process, issuing from the third joint, that is to say, the former being abnormal from the basal and the latter from the third joint; the left antenna, moreover, possesses three distinct clavæ, the right one being in this respect in its normal state, exhibiting, however, the partial development of a second one. In regard to the malformation of the right antenna as exhibited in the present instance, an exactly similar case was remarked by M. Buquet in another Coleopterous insect belonging to the Buprestidæ (Julodis Clovei, from Abyssinia), and notified by that gentleman in the Ann. Soc. Ent. Fr., accompanied by a figure (Ser. 2, vol. i. pl. iv. [iii.], fig. 1). It is in vain, I think, to suggest any cause for such an extraordinary freak of nature, and I must therefore content myself with merely recording the fact."

Mr. Stainton exhibited the pupa of Anchinia verrucella, one of the Tineina, which in its angular form, and mode of suspension from its tail and by means of girths round the body, resembled the pupa of a Pieris.

Dr. Alexander Wallace exhibited specimens, sent him by M. Guerin-Meneville, of the silk produced by Bombyx Cynthia fed upon the Ailanthus; the specimens included silk carded from the cocoon, spun silk, woven silk, and a skein of Ailanthine spun from the cocoon in one continuous thread. Dr. Wallace said that he was engaged in a series of experiments with a view to the introduction into this country of the cultivation of the wild silk-worms, from which it was hoped that the deficiency of the supply of the silk of Bombyx Mori might be made up; he had planted a railway-embankment near Colchester with the Ailanthus, which was found to be very hardy, and he had preserved larvæ of B. Cynthia through a temperature of 32° Fahr.

Prof. Westwood expressed a fear that an out-door colony of silk-worms would not succeed in this country so well as M. Guerin-Meneville's; the existence of small birds, which were practically extinct in France, would make a great difference in the result of the experiment.

Mr. Newman remarked, with reference to the alleged deficiency of silk, that there was no dearth of that article, that the English and French markets were overstocked, and that silk which five or six years ago was worth thirty shillings a pound was now not worth more than twenty-two shillings a pound.

Prof. Westwood said that, however that might be, the quantity of silk produced in France was diminished by one-third; and Dr. Wallace added that in many parts of France the mulberry was being destroyed, and the vine planted in its stead.

Prof. Westwood exhibited some extremely minute Acarideous insects, which he had received from Mr. Chapman, of Glasgow, who had observed them in vast numbers infesting the unopened buds of black currant trees, which they entirely destroyed by withering up the embryo blooms. These creatures, almost invisible to the naked eye, were of an elongated oval form, with an oval head and two pairs of short legs porrected in front of the body, the penultimate joint of each emitting a long bristle; the extremity of the body was obtuse, and also emitted two bristles, and the body itself was marked with very numerous transverse rows of minute dark dots. These creatures were also found dead in vast numbers on the inner surface of the sheathing-leaves of the dried-up buds. On one of the diseased buds were also found several specimens of a full-grown Acarus belonging to the genus Nothrus, and evidently forming a new species distinct from any figured by Koch. The genus, or rather subgenus, Nothrus forms part of the group Oribata, but Prof. Westwood was inclined to believe that the minute creatures were not the young of the Nothrus, but of some species of Tetranychus, some of the species of which are found upon trees, spinning extensive webs, as is the case with T. telarius. The only other recorded instance of a four-legged state of individuals among the Acaridæ occurred in the closely allied form figured by Dugès in the 'Annales des Sciences Naturelles,' 2nd series, vol. ii. pl. II. A, under the name of the "Acarien du galle de Tilleul," found in galls on the leaves of the lime-tree, which, from the structure of its palpi, mandibles and legs, M. Dugès was inclined to refer to the neighbourhood of Tetranychus. In every other recorded immature state of Acaridæ the animals possessed six legs. The question of the introduction of such great numbers of these minute creatures within the closely-packed leaves of the currant buds was difficult of explanation, but Mr. Stainton suggested that the eggs had been introduced into the immature buds in the previous autumn.

Prof. Westwood also exhibited a remarkable new species of butterfly from East India, which, although presenting all the general appearance of a species of the Brazilian genus Brassolis in its robust body and wings and in the coloration of the latter, belongs to the Lycænidæ, having the veins of the fore wings arranged as in Amblypodia Timoleon. The following are its characters:—

Genus Liphyra, *Westw.*

Corpus breve, crassum. Caput mediocre, oculis magnis. Palpi minuti, obliqui, suprà vix visibiles, articulo ultimo ovali, apice acuto. Antennæ rectæ, dimidio apicali sensim clavatæ. Pedes valde abbreviati, crassi, omnes sex æquales, perfecti, tibiis omnibus ecalcaratis; tarsorum unguibus integris, nec bifidis, pseudonychiis conicis, pulvillo subbilobato. Alæ magnæ, obtusæ, ecaudatæ; anticarum vena postcostali 4-ramosa, ramis duobus ante apicem cellulæ discoidalis, alterisque duobus æquidistantibus inter cellulam et apicem, cellula clausa; posticarum margine costali angulato, cellula in angulum acutum terminata.

Liphyra Brassolis, *Westw.*

L. fusca; alis anticis nigris, plaga magna hastata interno-basali, maculaque subquadrata parva discoidali fulvis; alis posticis fulvis, limbo maculisque quatuor parvis disci nigris.

Expans. alar. unc. 3¼.

Habitat Assam (Jenkins), Singapore (Horsley).

In Museo Hopeiano Oxoniæ.

Paper read.

Mr. Francis Walker communicated a paper entitled "Descriptions of undescribed Chalcidites." The whole of the species belonged to the genus Smiera, were discovered by Mr. Bates in the Amazon country, and are now in the collection of the British Museum.—*J. W. D.*

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TO CORRESPONDENTS.

Correspondents cannot fail to be pleased on observing how large a number of their communications have been printed in this number: I need scarcely particularise those still standing over, and *the whole* of which are arranged in a DOUBLE NUMBER, Price Two Shillings, to appear on the 1st of August. Two, however, I must not omit, the first an account of the RECENT MOA, whose bones have so lately been exhibited by Mr. Allis at the Linnean Society, and the second a further account of the EMEUS BREEDING AT BROCKHAM, by Mr. Bennett.

Edward Newman.

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